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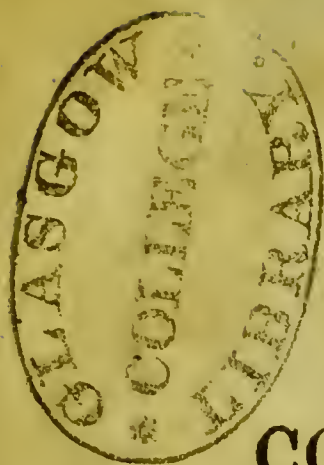


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THE
NEW LONDON
PHARMACOPŒIA.



THE
PHARMACOPŒIA
OF
THE ROYAL
COLLEGE OF PHYSICIANS
OF
LONDON,
M.DCCC.IX.

TRANSLATED INTO ENGLISH,
WITH NOTES, &c.

THE SECOND EDITION, CORRECTED AND ENLARGED.

BY RICHARD POWELL, M. D.

FELLOW OF THE COLLEGE,
PHYSICIAN TO ST. BARTHOLOMEW'S AND THE MAGDALEN
HOSPITALS.

LONDON:

PRINTED FOR LONGMAN, HURST, REES, AND ORME,
PATERNOSTER ROW.

1809.

IMPRIMATUR.

Hic Liber, cui titulus, *Pharmacopœia Collegii Regalis Medicorum Londinensis.*

Datum ex ædibus Collegii in Comitibus censoriis Junii Mensis 26to. 1809.

LUCAS PEPYS, Præs.

JOHANNES MAYO,

GULIELMUS HEBERDEN,

EDOUARDUS NATHANIEL BANCROFT,

RICARDUS PATRICIUS SATTERLEY,

} Censores.

TO

WILLIAM HEBERDEN, M. D.

EDWARD ASH, M. D.

AND

WILLIAM GEORGE MATON, M. D.

FELLOWS OF THE ROYAL COLLEGE OF PHYSICIANS OF
LONDON,

&c. &c. &c.

THIS TRANSLATION

OF

THE PHARMACOPŒIA OF THE COLLEGE

IS MOST RESPECTFULLY DEDICATED.

At the Court at the *Queen's Palace*, the 26th of *July*, 1809.

PRESENT

The King's Most Excellent MAJESTY.

Archbishop of <i>Canterbury</i> .	Mr. Chancellor of the Ex-
Lord Chancellor.	chequer.
Lord President.	Mr. Secretary <i>Canning</i> .
Earl of <i>Liverpool</i> .	Sir <i>David Dundas</i> , K. B.
Earl of <i>Harrowby</i> .	Mr. <i>Ryder</i> .
Lord <i>Mulgrave</i> .	

WHEREAS there was this day read at the Board, the humble memorial of Sir LUCAS PEPYS, Baronet, Physician to His Majesty, and President of the College or Commonality of the Faculty of Physic in *London*, setting forth, that the said President and College have, with great care, pains, and industry, revised, corrected, and reformed a book by them formerly published, intituled *Pharmacopœia Collegii Regalis Medicorum Londinensis*, prescribing and directing the manner of preparing all sorts of medicines therein contained, together with the true weights and measures by which they ought to be made: which book is now perfected and ready to be published, and, it is conceived, will contribute to the public good of His Majesty's Subjects, by preventing all deceits, differences, and uncertainties in making or compounding of medicine, if, for the future, the manner and form prescribed therein should be practised by Apothecaries and others in their compositions of medicines: The Memorialist therefore most humbly prays, that His Majesty will be graciously pleased to enforce the observance thereof in such manner as to His Majesty shall seem meet:—His Majesty this day took the said memorial into His Royal Consideration, and being desirous to provide in all cases for the common good of his people, and being persuaded that the establishing the general use of the said book may tend to the prevention of such deceits in the making and compounding of medicines, wherein the lives and health of His Majesty's Subjects are so highly concerned, hath therefore thought fit, by and with the advice of His Privy Council, hereby to notify to all Apothecaries and others concerned, to the intent they may not pretend ignorance thereof, that the said book called *Pharmacopœia Collegii Regalis Medicorum Londinensis* is perfected and ready to be published: and His Majesty doth therefore strictly require, charge and command all and singular Apothecaries and others, whose business it is to compound medicines, or distil oils or waters, or make other extracts, within any part of His Majesty's kingdom of *Great Britain* called *England*, dominion of *Wales*, or town of *Berwick-upon-Tweed*, that they, and every of them, immediately after the said *Pharmacopœia Collegii Regalis Medicorum Londinensis* shall be printed and published, do not compound or make any medicine or medicinal receipt or prescription, or distil any oil or waters, or make other extracts than are or shall be in the said *Pharmacopœia Collegii Regalis Medicorum Londinensis* mentioned or named, in any other manner or form than is or shall be directed, prescribed, and set down in the said book, and according to the weights and measures that are or shall be therein limited, except it shall be by the special direction or prescription of some learned Physician in that behalf. And His Majesty doth hereby declare that the offenders to the contrary shall not only incur His Majesty's just displeasure, but be proceeded against for such their contempt and offences, according to the utmost severity of law.

STEPH. COTTERELL.

P R E F A C E

TO

THE FIRST EDITION

OF THE

T R A N S L A T I O N.

TRANSLATIONS have been found by experience to be useful attendants upon former editions of the London Pharmacopœia, both for the purpose of facilitating and extending an acquaintance with its processes, and of conveying additional information upon many points which are not considered in the brevity of the original work. That of the year 1745 was thus given to the public by Dr. Pemberton, that of 1787 by Dr. Healde, and the President and Committee have done me the favour to delegate the present edition to me. I purpose, therefore, as a preface to this part of the work, to state the method employed by the College in

compiling it, and the general alterations which it has been judged proper to make; and also to explain the additional matter which I have introduced under the form of Notes.

The first Pharmacopœia, which is recorded to have received the stamp of any public authority, was that of Valerius Cordus, sanctioned by the senate of Nuremberg in 1542; since which time, on account of the facilities and advantages they afford in the practice of medicine, they have been largely multiplied in all the countries of Europe. The charter of Henry VIII. which first incorporated the London College of Physicians, bears date in 1519, and they published their first Pharmacopœia in 1618. Since that period various revisions have taken place in the following years*, — 1618, — 1627, — 1632, — 1639.—

* The following extract is added to explain the reason why two editions were published in the year 1618.

EPILOGUS.

Edimus jam secundo partu, secundo magis eventu, Pharmacopœiam Londinensem. Nos (inquam) edimus, nam priorem illam informem, deformem, festinans typographus dicemus edidit? immo verius protrusit in lucem. Sicut calore æstuans jecur, crudum adhuc alimentum avidâ quâdam fame rapit a ventriculo: sic ille e manibus nostris hoc opusculum adhuc impolitum surripuit, inconsulto, immo tunc absente Præsidente et procul ab urbe avvocato, qui illi limando, poliendoque potissimum invigilavit. Qui post reditum indigne ferens illud tot mendis & erroribus conspurcatum, tot detrun-

1650,—1677,—1720,—1745,—1787;—which have successively contributed to the improvement of Pharmacy, and have accommodated it to the progress of general science. Nor will those who consider the vast increase of our knowledge in practical medicine, chemistry, and botany, within the last twenty years, think that the College has been hasty in determining upon another revision at the present period. Neither pharmacy, nor any other branch of human knowledge, can remain stationary, or, perhaps, ever be expected to attain perfection; this edition, therefore, like its predecessors, must hereafter give way in its turn, although the College have hoped, that, by associating it more with the collateral sciences, the changes which time will hereafter render necessary, may have a chance of being less marked and violent, than those which the present and last editions have seemed to require.

The College determined upon the present work at their Comitia majora on September 30, 1805, and then delegated the prosecution of it to an open committee of the Fellows, who commenced their meetings in January 1806, and

catis et deperditis membris mutilum et mancum, in publicum prorepsisse, convocatis ad se Collegis, totum opus quâ potuit diligentia ad incudem denuò revocavit; secundamque editionem maturavit: quæ nunc demum in lucem prodit a mendis purior, remediis locupletior: quæ et fælicior est futura, si illam candor tuus et frons benigna cohonestent,

Dec. 7, 1618.

have proceeded regularly, with intervals during three of the summer months, to the present time, in the following order. Considering in the first place the Pharmacopœia of 1787, they were desirous of obtaining the opinions of the profession at large, as well as of the individuals who attended the committee, respecting any changes which might be thought necessary therein, in order that they might have before them the most general and comprehensive view of the subject in discussion; and for this purpose they stated their intention to every member of the College, and to the Royal College of Surgeons, and Society of Apothecaries, and caused it to be generally understood that they should thankfully receive suggestions from any other individuals, who were practically conversant with the subject.

In consequence of these requests, they did accordingly receive numerous communications, which were arranged and considered under their proper heads. Their next care was to establish certain general principles, and then to consider and discuss the whole Pharmacopœia, article by article, with all the adventitious aids their own industry and knowledge, and the suggestions of others, might supply. Nor did they, in their progress, overlook, but, on the contrary, derived great assistance from the recent Pharmacopœiæ, edited by the Royal Colleges of Edin.

TO THE TRANSLATION.

burgh and Dublin. They also established, as had been done in a former instance, a most important intercourse with the Society of Apothecaries, who appointed a committee from their body for the purpose of co-operating, in the use of their extensive laboratory, and in bringing to the test of that sort of experiment upon a large scale, which could alone render the suggestions of science practically useful, the several processes which were communicated by the College.

After having made various alterations, the Committee went a second time through the whole, under what appeared to them to be a more convenient and scientific mode of arrangement than that of the editions of 1787 and 1745, and then printed a Specimen, containing the result of their enquiries. This first Specimen was distributed at the end of April, 1808, to each of their own members, and also to others who had either interested themselves in the furtherance of the work, or were thought well qualified to give an opinion upon it, and it was made public in every possible way, with a request that the copies thus distributed and any remarks thereon, should be returned by the 25th of June following. Of two hundred and fifty copies thus circulated, sixty only were actually sent back; and there was also reason to complain that some which remained had got into improper hands, for

their contents were very unfairly incorporated as the new London Pharmacopœia, with some publications of the day. Many, however, of those who did comply with the wish of the College, and return their copies, had examined the contents with that zeal for the advancement of their profession which it was the wish of the committee to excite, and the annotations were consequently both numerous and valuable.

It seemed that for the purpose of examining, arranging, and determining upon these communications the fixed attention of a smaller number than had usually composed the general Committee would be preferable. This part of the work was therefore given to a sub-committee of four of the Fellows only, who were authorized to prepare a second Specimen, with such alterations of the former as might be further suggested by the subject itself, considered as a whole, as well as by the observations which had been received. This specimen having been first submitted to, and approved by the general Committee, was circulated among the Fellows resident in London only, and it was again requested that the specimens should be returned, and the former sub-committee again undertook the task of examining such remarks as might be offered thereupon. The final report was made to the College at the Comitia majora, held

March 25, 1809, which was adopted, and the Pharmacopœia thus completed was ordered to be published accordingly. The superintendence of the publication was committed to the President, Treasurer, and four of the Fellows, and the work is now before the public.

The objects of a Pharmacopœia seem to be, to direct what simple medicinal substances ought to be found in the shops of Apothecaries, and to describe such preparations or compositions of these, as cannot be made without length of time, yet are often wanted for immediate use, and therefore ought to be kept in readiness; and this latter division will of course require, that the articles directed should not undergo any change or alteration in their composition, if kept for a reasonable length of time. There is still a third class of preparations, which belong rather to extemporaneous prescription, which require to be made at the time, and on the occasion for which they are wanted, and the introduction of which into a Pharmacopœia is rather a matter of convenience than of positive necessity. Some indeed may think it doubtful how far such a division ought to be received at all, because no bounds can be set to the number of articles a Pharmacopœia may contain, if it be once allowed to encroach upon the business of extemporaneous prescription; for the formulæ used in this way at different periods,

and preferred by different individuals, have varied extremely according to the fashion of the day, and multiplied almost to infinity. The direction, however, of such articles to a certain extent is sanctioned by use; it facilitates very considerably the business of prescription, it fixes also a certain standard of proportions which is convenient in professional intercourse, and it has, for these reasons, been rather extended than abridged in the present Pharmacopœia.

Although it has been the long established practice upon the continent for different Pharmacopœiæ to be compiled by different universities, and authorized within the jurisdiction of almost every different state; although the same practice has prevailed in these kingdoms, and the Colleges of Physicians of London, Dublin, and Edinburgh, have each issued Pharmacopœiæ for the use of their respective kingdoms, the two former of which have been enforced by Royal Proclamations; yet in the intercourse and union which now subsists between these kingdoms, it is to be lamented that a general Pharmacopœia Britannica is not established, as one common dictionary, to which practitioners throughout the whole empire may uniformly refer with confidence, and without the chance of mistake either in the name of an article or the mode of its preparation. In the execution

of a national work of this sort great difficulties might and would occur, prejudices and different modes of thought and practice would probably create much difference of opinion, but none of these would be insurmountable to men of sense and science, and I am persuaded that some future age will see the advantage and even necessity of the attempt.

The *Arrangement* of a Pharmacopœia is arbitrary and of little importance, such a work is in fact only a register of those medicines which the Apothecary ought to prepare and keep, and in some instances simple alphabetical order alone has been thought sufficient. That now adopted has for its only advantages that it brings together more closely similar preparations under similar heads, and is more accordant with the chemical opinions of the present day.

The *Nomenclature*, which is the next general point for consideration, is of more consequence, and it comprizes both the subjects of natural history and chemical composition. With respect to the former, the plants originally employed by the Arabian and Grecian physicians were very imperfectly understood by their successors, and seem most commonly to have been applied by mere chance and guess, on the revival of learning in the West. Still, however, the names they had used were again employed and applied, and new Latin ones were coined to express such other

plants, as were afterwards supposed to possess medicinal powers; and these for the most part were translations of the current names by which they were known generally. These being once admitted into the Pharmacopœia, were retained without any definition or certainty, until the year 1720, when it was found further necessary to refer them, for the sake of accuracy, to the standard systematic work of that time; and in the edition then published a correspondent column of Synonyms was consequently given from Bauhin's Pinax; the same was continued also in the Pharmacopœia of 1745: but before the publication of that of 1787, the system of Linnæus had become established in general superiority, and the references were, therefore, then made to his Species Plantarum, but occasional deviations from it were sometimes admitted, where more recent authorities or more accurate observation required them. In his nomenclature Linnæus had endeavoured to incorporate received medical terms; but, with respect to articles of foreign production, his information was in many instances necessarily defective, such terms therefore were of course often misapplied at first, and have still continued to be so, until at last the established botanical and medicinal names have sometimes been found at direct variance with each other. As an example, the use of the term *Cicuta* in medicine has

been synonymous with a species of the Linnæan genus *Conium*, and the word *Cicuta* is used in the same system to express a different genus. So great an inconvenience the College have now remedied as far as was in their power, and with as little violence as possible to the names commonly employed. Under this impression they have thought it most convenient and fully sufficient for the purpose of distinction, to express each article in general by a single word; and have retained the former term, wherever it accorded, either with the generic or specific name of Linnæus. Both of these, however, it has been necessary to employ in those instances where it was requisite to distinguish between two species taken from the same genus and both used in pharmacy. In the Pharmacopœia of 1745, the name of the part of a plant where a part only was taken, was, in the catalogue of materia medica, added in the nominative case to the name of the plant in the genitive, and repeated in all the formulæ in which that article was employed; in that of 1787, the name of the plant itself was placed in the nominative case, and that of the part used was separated from it by a comma, placed in the nominative also, and printed in a different character, but omitted entirely in the subsequent formulæ; so that in the body of the Pharmacopœia the name of the whole was used to

express its parts, as, for instance, *Senna* for *Sennæ folia*. In the first specimen, this same practice was adopted and farther extended from the preparations, to the catalogue also, in which the officinal name of the plant alone occupied the first column; and the systematic generic and specific ones, with the part used affixed thereto, formed the second column. It was thought, however, on more mature consideration, that this sacrifice of propriety to brevity was improper; that no authority existed by which the transfer of the name of the whole plant to one of its parts could be justified; and it was, therefore, resolved to use the name only without any addition, where the whole plant is used; and, where parts are taken, to designate those parts and to incorporate both in the first column, as in the Pharmacopœia of 1745.

In the nomenclature of chemical substances and compositions, there has been more difficulty in adopting general principles, and at the same time bearing in mind practical application; here may, therefore, be more grounds perhaps for objection to what has been done. The founders of the French chemical language built it upon the basis of their own theory, and willed that the one should be an explanation of the other. Of the masterly manner in which the foundation was laid, and the superstructure completed, it is

not necessary here to speak, because its general reception through Europe is a sufficient proof of its excellence; but perhaps a language, when it professes to describe, as well as designate its objects, goes too far; and if the theory of this science should hereafter change, a change in the language dependent thereon must also accompany it; and this event may not appear very improbable, when we contemplate the late gigantic discoveries of Mr. Davy with respect to the alkalies and earths, and the employment of a new and powerful agent in chemical decompositions: perhaps, therefore, it would on every account have been better if a set of arbitrary terms had been at once invented and defined, without any connection whatever with the theory of any particular period. For what is necessary to the perfection of a nomenclature? As by names substances are distinguished from each other, their essential properties ought to be brevity and dissimilarity; and if those employed be accurately defined and generally understood, if they be sanctioned by use, be so distinct as not to be liable to mistakes, and above all convey no false ideas of the substance they are intended to designate, such a nomenclature may be considered as perfect. The principle too of explaining the composition of a substance by affixing to it a name formed of those of its constituent parts, is too limited in

its application ; it may suffice for compounds of a few constituent parts only, but must be dropped in those numerous complex combinations which are daily presented to us by nature and art; and on these accounts Mineralogy, which is but a branch of chemistry, has found the necessity of adopting arbitrary terms to designate its particular subjects. Of all these inconveniences the College have felt the full force; but they have finally judged it proper, for the sake of uniformity and consistency, in adopting the products of chemistry, to adopt also its language, to go farther in this respect than the Pharmacopœia of 1787 had done, and to do away those peculiarities of nomenclature which were then established. There are still, however, many names which, chemically speaking, will not be found to be correct; as in instances where the substances have been too complex to be expressed without a periphrasis, which would render them but ill suited to the purposes of prescription, or where the established name neither contradicted the received doctrines of chemistry, nor was liable to mislead in its application. The expression also of the relative proportions of the constituent parts of certain salts which unite in more than one, by prefixing *Sub* or *Super*, according to circumstances, has been adopted in those cases only in which the compounds of more than one proportion

are used pharmaceutically; but these terms have not been extended to other cases where no such distinction was requisite, although, strictly speaking, they would in fact belong to the particular substance. Another deviation from chemical usage has been made in placing the name of what is called the *base* of the salt first, instead of last in order; this is, perhaps, a trifling circumstance, and hardly deserving notice, farther than to state, that it has proceeded from caution rather than from any whimsical singularity. In the medical application of a salt, the base is of primary importance, in which any accidental mistake would be of far the greatest consequence in compounding a medicine; and those who are used to the subject well know the greater value and force of the first, over any subsequent word, used for a name, either upon the label of a bottle, or in the prescription of a physician.

In mentioning the probability of mistakes, I shall take leave incidentally to state the importance of a distinct, full, and legible prescription, both to the physician and his patient, and to express my opinion upon the necessity of writing each word at length, rather than to risk its being misapprehended in the shop, by contracting it; a practice which can save very little time to the prescriber, and may be productive of fatal effects. It is not necessary to strengthen this assertion by giving facts of

actual occurrence; unfortunately they are too common, and might often be prevented by attending to the circumstance I have mentioned.

It will also be found among the alterations, that the three former titles of *Conserva*, *Electuarium*, and *Confectio*, between which there has never been any intelligible difference, have all been consolidated under one head, *Confectio*. The term *Extract* also is farther extended, and now includes the articles which were before called *inspissated Juices*, and in one instance (*Elaterium*), a peculiar substance, which is properly *Fæcula*. The strict chemical application of the term *Extract* is very limited, and used to express only one constituent part of what is obtained from plants by the pharmaceutic processes; but in their mode of preparation these accord sufficiently to justify the present arrangement under one head, for each consists of parts separated from plants, which parts are dissolved in water, either naturally present, as in fresh plants, or purposely added to dry ones.

Those terms now first introduced which are drawn from general chemistry, are already familiar to the greater part of the profession, and will be easily understood and retained. There are, it is true, some unavoidable evils connected with a frequent change and diversity of names; one of which is, that the great body of practical information contained in books, is thereby gradually rendered more and more inaccessible, to

those who do not professedly study the old vocabularies; and many an excellent modern practitioner would be puzzled to explain some formulæ which were written even as lately as the time of Sydenham; because they consist of articles which are now either become obsolete, or which have changed their names so often, that they cannot be recognised in their ancient dress without difficulty. Indeed, it has often struck me that a man of moderate abilities and diligence could not do a more acceptable service to his profession, than by compiling a Dictionary of Pharmacy and Materia Medica, which might explain the practice and prescriptions of the old Writers and Pharmacopœiæ, and render intelligible that great mass of information which is now rendered useless by obscurity of nomenclature and complexity of form. Under this impression, I have myself made some collections towards such a work, and shall probably proceed with it, as I have time and opportunity; but whether I shall ever be able to advance far enough, to satisfy myself, or to benefit my profession, is matter of great uncertainty.

The necessity for some alteration in the denominations of *Weights* and *Measures* has long been apparent, and an attempt has been made to obviate it in part in the two last editions of the Pharmacopœia, by defining the

quantity of each article of a prescription, as it was intended to be taken by weight or measure, by affixing thereto P (pondere), or M (mensura). An arbitrary and more distinct change has now been made in the denominations of liquid measures, which may at once distinguish between the two, and in which the least possible violence has been done to those terms which are established by use. It would, perhaps, be highly advantageous if the whole system of our national weights and measures was altered at once to the French standard, which certainly possesses superior accuracy, uniformity, and convenience: while, however, the legal national weights and measures remain as they are, the College are bound to adopt them; and would by no means be justified in creating that sort of confusion which must necessarily arise in practice from the employment of new ones, or the reduction of both to one common standard.

It has further become necessary that the College should fix some rule for the division of quantities of liquids of less bulk than a drachm, which was the lowest in their former table. The customary mode of effecting this by *drops* is uncertain in itself, and has been lately rendered still more so by the introduction into some shops of glass measures, which assume that a drop is the sixtieth part of a

drachm by measure, be the density of the liquid what it may, whilst, in fact, the same bulk of one liquid may require more than twice the number of drops that another does, even when each is dropped from the same bottle; but these small quantities are usually given from solutions of the most active substances in medicine, and their accuracy is proportionably important. Drops are at any rate inaccurate, and influenced by variety of circumstances. Measures are more uniform, and influenced slightly by temperature alone; the College have therefore adopted the latter, and wish to deprecate the employment of the former in every instance.

In the several *Processes* of the Pharmacopœia, considerable alterations will be found to have been made. Expence in preparation ought not to be balanced against correctness and uniformity; and it is to be lamented that the desire of profit, and competition of trade, should have led so many chemists to deviate from the established directions in preparations sold under the same names, and used as the same articles. The College therefore have felt themselves obliged to attend, in some measure, to this prevailing and baneful practice, and to take away all excuse for deviation, by not giving unnecessary trouble, or creating unnecessary expence; they have therefore looked

chiefly to uniformity of strength, and consequent precision in the effects of medicines, rather than to that degree of purity which would be required in the preparation of chemical tests. Their directions are given *generally*, because the manipulations must vary somewhat according to the scale on which the preparations are made, and other circumstances of convenience to the operator, and because the Pharmacopœia is intended to direct those who are already, by their education, instructed in the practice of pharmacy, not as an elementary book to teach the art itself. The apothecary, who is well educated, will have no difficulty in working according to the formulæ which are given; and great attention has been paid to render the results, if he does so, accurate and correct.

Those vague and complicated forms of medicine which were received from the Arabians and Greeks on the revival of learning, and which so much confused the ancient practice, have been still more simplified in the present edition. Whence these arose in the first instance is uncertain. They probably were founded originally upon an imperfect knowledge of the powers of substances, and the hope that, in the accumulation of many things of similar virtues, the most efficacious might be given among them. I think it may be asserted, with-

Out fear of contradiction, that no medicine, compounded of five or six simple articles, has hitherto had its powers examined in a rational manner. In answer to this it may be said, that there is no necessity for mathematical accuracy in such an enquiry, and that each article need not be examined individually, and in the several relations in which it may stand to every separate part of the compound; that we conjecture what will be the effects of that compound from our knowledge of the qualities of its constituent parts, and that experience afterwards examines and confirms their use. Now, if we are to begin conjecturing as to the effects of three or four articles combined, where are we afterwards to stop? No bounds can be set to the agency of such a principle, when once admitted; and we shall speedily arrive at compositions of one hundred ingredients or more, such as *Mithridate* and *Theriaca* have heretofore been. But the argument, that experience has confirmed the use of complicated forms, if it be well founded, is the only one that need be adduced; it is in itself sufficiently strong. So far, however, is this from being the fact, that there are not half a dozen compounded medicines which have remained the same for a century, or scarce an edition of the *Pharmacopœia*, in which additions to, or subtractions from, them have not been made. Upon an experi-

ence so variable, much dependance cannot be placed ; but, in truth, it has not been sober experience ; that same spirit of speculation and conjecture which first formed the composition, makes also the subsequent alterations in it ; and the simplification of its instruments is one great proof of the improved state of our science, and will probably hereafter be carried to a still greater extent even than it now is.

There are some compounds into which certain quantities of the most active substances, such as opium and mercury, enter ; and of these the relative proportions have in a few instances been altered. Wherever this has been done, it has been intended to bring them to an even proportion, and to render their doses more easily calculated.

With respect to the omissions in the present edition, when compared with the last, it will hardly be thought that any article which is omitted ought to have been retained. There is, perhaps, no objection to an extensive list of *Materia Medica*, but there are many to a trifling and inert one. Even some compound medicines, which consist of few articles, and can be better mixed extemporaneously, in proportions suited to the circumstances of practice, have in some instances, on this account, been omitted. Different forms of the same thing, as the several animal carbonates of lime,

have been reduced to one. The whole chapter of *Trochisci* has been expunged, because they are prepared rather by confectioners than apothecaries, and are chiefly directed by the prejudices of the patient; they rarely make a part of the prescription of a physician, and form moreover a most indefinite and uncertain mode of administering any active medicine.

Although the omissions are numerous, the introductions very nearly keep pace with them; and although some differences of opinion may perhaps exist respecting a few individual articles, they will be found upon the whole to add effectually to the convenience and means of the practitioner. Perhaps it may be thought that, in some instances, there has been too much caution used in the omission of various articles of modern and respectable recommendation; and on this head considerable difficulties have in fact occurred. There is nothing more fallacious than the judgment and evidence of individuals upon the medical powers of substances to which they are attached in their own practice; and to judge from the various monographs upon such subjects, which have been published at different times, it would be believed that specific remedies exist for every disease which it is the lot of man to suffer; and that by the employment of a few simple articles only, human

life might be prolonged according to the will of its possessor. The College, while they have felt this difficulty, have at the same time endeavoured to obviate it for the future, and have laid the foundation for an effective investigation of the powers of those substances which are from time to time recommended by individuals, by appointing a large Committee from their own body, of those, whose public situations give them the means of enquiry, for this express purpose, and requiring that their reports shall be agreed upon by the majority, and not convey the opinion of an individual only. It is therefore to be hoped, that any future additions to the catalogue may stand upon a firmer and more distinct basis than heretofore.

The further improvement of the Pharmacopœia may also be expected from a more intimate acquaintance with the characters of those articles which form the *Materia Medica*. This information scarcely occupies, in the medical education of the present day, the rank which its importance demands, and, comparatively speaking, may be considered to be rather upon the decline. The College will hereafter be enabled to promote and extend this branch of knowledge by the liberality and public spirit of Mr. Brande, who has very lately presented to them the unique and extensive collection

of specimens, which were bequeathed to him by the late Dr. Burges.

Lastly, as to the *Language*, simplicity and precision have been looked to rather than elegance of stile, and Celsus and Pliny have been considered as ample authorities for the construction of a modern Pharmacopœia. From any apology, however, for the authorities which have regulated the Latinity of the body of the work, the pure and elegant Preface, which is the composition of the President, may safely be exempted.

Having spoke thus at large upon the composition of the original work, it will become me to speak briefly of the translation which is now offered to the public. The text has been rendered closely, but, I hope, intelligibly to all; if it be so, no higher merit can be claimed for it; and further than this, I have not in truth been anxious as to the language in which it is clothed. In the botanical part of the catalogue I have added the ordinary names instead of anglicising the systematic ones, and for these I have gone to established works, to Smith's *Flora Britannica* for those which are the produce of our own country, and to Martyn's edition of Miller's *Gardener's Dictionary* for the remainder. But as generic and specific names only are given in the Catalogue, and as Willdenhow's edition of the *Species Plan-*

tarum of Linnæus may not be accessible to all those into whose hands this work may fall, I have attempted a translation of his essential generic and specific characters also, which, with some other particulars, I have thrown into alphabetical order, and added in the Appendix. This translation has been made in conformity, for the most part, with Professor Martyn's Language of Botany (Lond. 1807). In the notes which are subjoined in a smaller character to the several preparations, I have put together such additional information relative to the subject as seemed to me important to be known in the shop of the apothecary. I have, in most instances, endeavoured also to state the chief reasons which have led to the several changes made in the text from the former Pharmacopœia. This may be imperfectly done, and I must take the imperfections, such as they are, upon my own head; in them the College can have no share, nor can they be blamed for their determinations, if my reasons shall appear insufficient. I have taken a large portion of the mechanical part of the work upon myself, and I have not been absent during the whole period from a single meeting connected with it; I have arranged the correspondence received during its progress, and altogether, therefore, may not be wholly inadequate to the commentary I have undertaken. To each article I have added the synonym of

the Pharmacopœia of 1787, 1745, and 1720, distinguishing those articles of the last Pharmacopœia, and of that only, when they differed from the present one in preparation, by printing them in a different character. The chemical authority to which I have chiefly had recourse, and which I ought, therefore, to acknowledge, is the third edition of Thomson's System of Chemistry (Edin. 1807), to the accuracy and excellence of which a good deal of attention to the subject enables me to bear ample testimony.

I may be thought by some not to have paid due attention, or made sufficient comparative references, to the Edinburgh and Dublin Pharmacopœia; a new edition of the former of which appeared in 1805, and of the latter in 1807. This has not arisen from any want of respect or admiration on my part of the works alluded to, the merit of which I most readily acknowledge; but for the purpose of avoiding confusion, which I have seen happen again and again from the incorporation of three Pharmacopœiæ into one work. I have professed to translate the London Pharmacopœia, not either the Edinburgh or the Dublin; these may be consulted in Dr. Andrew Duncan's Edinburgh New Dispensatory, though I cannot but wish, while I make this reference, that he had given each separately, rather than incorporated them

with one other; in truth the errors I have mentioned as arising from this source, give an additional reason in favour of the idea of a national Pharmacopœia. I have abstained from affixing to the several articles their medical virtues, or the cases in which they are more particularly exhibited, because directions of this sort are scarcely within the province of a Pharmacopœia, and to be done satisfactorily, they would occupy too much room: I have thought, therefore, that to omit them entirely, was better than to give them imperfectly. For the same reason I have not given any history or character of the articles in the catalogue of *Materia Medica*; the works I would at present recommend to the student upon this subject, are Aikin's edition of Lewis's *Experimental History of the Materia Medica* (Lond. 1791), and Murray's *Apparatus Medicaminum* (Gotting. 1776); and if I ever complete the work to which I have before alluded, a correct description of the articles of *Materia Medica* will form a principal feature in it.

It will explain some seeming inaccuracies in the references to the Pharmacopœia of 1787, if I mention that successive editions have varied somewhat from each other, and that unfortunately they have been confounded together. The quarto and the first duodecimo agree together; an octavo was afterwards published

with alterations, and a duodecimo since with more alterations still, and these can only be distinguished by looking for some known point of difference between them in the body of the work.

A few tables are added in the Appendix, which I think will prove useful as references. In one of these the prosody of the terms is marked, and the two extremes of the usual doses for adults are attempted to be established. Any such attempt must, however, be vague and imperfect; the doses must vary essentially according to the effect intended to be produced, and the idiosyncrasy of the patient; so that a table of this kind will only save the uninstructed from any manifest error, not inform the established practitioner; and in some instances, when they are influenced by bulk rather than medical power, may seem, perhaps, to be fixed very incorrectly. It differs in very few points from a similar table affixed by Dr. Latham to the later editions of Dr. Healde's Pharmacopœia, and those deviations are founded upon actual experience. The remaining tables require no observations.

The original work will of course become the subject of various opinions, and the translation will follow the fate of its parent, whilst, on its own account, it can aspire to no praise beyond that of being useful. For myself I shall per-

xxx PREFACE TO THE TRANSLATION.

severe steadily in what I conceive to be the path of my public duty, turning neither to the right nor the left, and with an earnest zeal to contribute to the advancement of a profession to which I am bound by inclination as well as gratitude. Perhaps I may err in judgment, I may be deficient in ability, or sometimes in attention; and I shall willingly and thankfully submit myself to correction and instruction, especially if by their means I shall be enabled hereafter to render this translation more generally useful.

R. POWELL.

*Essex Street, Strand,
July 15, 1809.*

ADVERTISEMENT

TO THE

SECOND EDITION.

I AM called upon by the publishers to supply a second Edition of the Translation of the Pharmacopœia sooner than I expected, and sooner, also, than I wished.

The Pharmacopœia itself will probably produce some difference of opinion, and will be subjected within a short time to an abundance of observations; of these I did hope to be able to take advantage, and to have had sufficient time allowed me to modify this translation accordingly, so as either to extend or contract my explanations as any fair and liberal criticism might demonstrate to my mind to be necessary. This, however, has not been the case, and I have in the present edition only endeavoured

to correct the errors of the former, to collate it more minutely with the original, to alter some few of the notes which I thought I could improve, and also to add some matter which is likely to be useful.

It would, however, be unjust to the purchasers of the former edition to allow them to retain their copies without supplying to them the means of correcting inaccuracies therein, although any such would be readily pointed out by comparison with the original work which this translation is intended to accompany, not to supersede. A list therefore of such alterations as must necessarily be made is printed for their use, and will be supplied to them gratuitously through the medium of their booksellers.

When the former edition was completed, I also thought it would prove a convenient and ready mode of reference, particularly in shops, if the relations of the last and present Pharmacopœiæ were arranged in the form of tables; two such tables were therefore drawn up and printed, and I have reason to believe they are found useful.

I have here to acknowledge the receipt of several communications relative to this translation, and I do it with unfeigned gratitude, because they have assisted me in the great object to which I look; and the writers of them will

further do me the justice to believe that where I seem to have neglected them I have done it upon reasons which have seemed to my own mind to be sufficient.

Those are greatly mistaken who suppose that great pecuniary advantage attaches to works of this sort; indeed under the existing expences connected with them such is impossible, and those to whom I am known will readily give me credit for more honourable motives. The hope of assisting and instructing the uninformed, and of facilitating an acquaintance with the Pharmacopœia to those who are bound to understand its changes and apply its processes, seems to me to be the only inducement which can lead a man to submit himself involuntarily to all the inconveniences and vexations of editorship; and if it be my lot to contribute in any way to the promotion of a profession of so much importance to mankind as that of medicine, my labours will be amply repaid, and my highest ambition most abundantly gratified.

R. POWELL,

Essex Street, Strand.

Nov. 7th, 1809.

TRANSLATION

OF THE

PREFACE TO THE PHARMACOPŒIA.

AFTER an interval of scarcely two and twenty years, we have resolved again to revise our Pharmacopœia. This labour has been imposed upon us by the improved state and daily cultivation of Natural Science, which has within that short period been freed from so much error, illustrated by so many experiments, and established upon principles so much more firm and profound than before, that should medicine alone of all its branches be suffered to remain stationary and neglected, we might justly incur discredit; especially, when of the two other sciences Chemistry and Botany, which are most closely allied to our own, the latter has investigated with

immense labour the vegetable productions of every climate, and the former has changed its whole system and language for a better. There seemed, therefore, to be no excuse for delaying any longer a diligent revision of the powers of the substances used in medicine, to ascertain whether any of them ought to be expunged from the list, as obsolete or superfluous.

We are without doubt greatly indebted to our immediate predecessors, inasmuch as they rendered the process of Pharmacy more certain, and expeditious: for even in their time the dawn of modern Philosophy had appeared, dispelling the clouds of former systems, removing with the concomitant darkness their groundless apprehensions, and, in short, opening the secret recesses of nature so far as to show clearly, what was incongruous, and what was accordant; what substances were at variance with each other, and what might be best associated together in composition. But such is the condition of art, that it admits only of improvement, not of absolute perfection.

Hence, therefore, the science of Medicine has annually made some progress, nor has the present age been wanting in its endeavours to carry further what the former had begun; for it has described with greater accuracy the symptoms of some diseases, and has discovered more suitable

remedies for others ; it has rejected some medicines which were useless and inefficacious, and by experience and authority has established others of greater powers ; it has also examined the whole with more accuracy, and taught more scientific methods of compounding them. When, therefore, we first commenced our revision of the Pharmacopœia, we discovered many things which but ill accorded with the present more perfect state of our art ; still more which were at variance with the improved system of nomenclature devised by philosophers of later times ; and some which it became necessary to add for the sake of greater order and consistency in the work itself. We have been fully aware, however, of the great inconvenience and danger which arise from frequent changes in Pharmacopœiæ ; but we have also felt that whatever accords most closely with real science will in the end become the most established and most useful. Under this impression we resolved, as far as the nature of the thing admitted, to affix to medicines those names which were correct, and which accorded with the composition of each, taking care at the same time that the titles should not acquire a length which would prove inconvenient to the prescriber. If, therefore, in order to express clearly the composition of any article, a number of words became necessary, we have

preferred a more simple appellation, even though less scientific.

With respect to ourselves, we have spared no pains to render the present edition as perfect as possible. Not that we are bold enough to imagine that it will satisfy every body, or that it is free from errors; but before any person proceeds to criticise these with severity, we intreat him to reflect upon the diversity and difficulty which attach to a work of this sort, and we trust he will not then be disgusted with a few faults which may occur.—But on this point enough has been said.

Some terms which are employed require a more earnest apology, since they may seem to deviate more than was necessary from common usage, such as *Anthemis*, and *Lytta*; or to sound harshly and barbarously, as *Potassa*: upon the admission of these we for some time paused, but what could be done against the authority of all the naturalists of the present day; or with what propriety could we alone retain names of animals, vegetables, and minerals, which the chief writers in this branch of science had applied to substances entirely dissimilar? We have therefore thought it better to risk the accusation of barbarism, than to admit terms of doubtful or uncertain signification, or to dissent in a few names only from the established practice of chymists.

With respect to the change which we have determined upon making in the measures of liquids, we do not fear the imputation of having done it from an affectation of novelty, since it has long been considered as necessary. Affixing the same names to measures of liquids and to weights of solids very frequently produced mistakes. We have not ventured to alter the measure called a *Gallon*, the capacity of which is defined by the statutes of the realm; but we have deemed it to be not only lawful, but our positive duty to divide this into parts, and to affix names to each, according to our own judgment.

Moreover, we hope we have followed that sort of method in perfecting the work which is best suited to the subject of it; and it will be the most agreeable reward we can receive for the care and labour we have bestowed, if, such as it is, it shall contribute to the public good, and tend to point out more certain remedies for the cure of diseases, or become instrumental towards a more speedy alleviation of them.

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1875
1876

THE HISTORY

OF THE
CITY OF BOSTON

THE BINDER

Will place the Plate opposite the Explanation
at the end of the Book.

Pharmacopœia Londinensis, The London Pharmacopœia.

PONDERA, MENSURÆ, &c.

WEIGHTS, MEASURES, &c.

Two kinds of Weights are used in England, by one of which gold and silver, and by the other almost all other kinds of merchandise, are valued ; we employ the former, which is also called *Troy-weight*, and divide the pound in the following manner, viz.

The pound, lb.	}	contains	{	Twelve ounces. 3
The ounce,				Eight drachms. 3
The drachm,				Three scruples. 3
The scruple,				Twentygrains.gr.

We have added the signs by which the several weights are denoted.

WEIGHTS, MEASURES, &c.

It may not be superfluous to insert the following Table, as explaining the more minute relation of weights.

Pound.	Ounce.	Drachm.	Scruple.	Grain.
1	= 12	= 96	= 288	= 5760
	1	= 8	= 24	= 480
		1	= 3	= 60
			1	= 20

The following characters are also in general use.

R. Recipe. *T*ake.

ā āā ana: of each.

ss. the half of any thing.

Cong. Congius. a gallon.

Cochl. Cochleare. a spoonful.

Wholesale dealers and Apothecaries buy their drugs by Avoirdupois-weight, though Troy-weight is used for the composition of medicines. The relations, therefore, and the differences which exist between the two, ought always to be kept in mind.

Now the Avoirdupois pound contains 7000 grains, and the Troy and Apothecaries pound only 5760, hence the pound of the latter is less than that of the former by 1240 grains, and 1 lb. Avoirdupois is equal to 1 lb. 2 oz. 11 dwts. 16 grs. Troy.

But the Troy ounce, on the other hand, is greater than the Avoirdupois, for the former contains 480 grs. the latter, $437\frac{1}{2}$ grs.; and 175 Troy ounces are equal to 192 Avoirdupois.

The relations of each may be seen at once in the following Tables.

144 lb. Avoirdupois = 175 lb. Troy.

192 oz. Avoirdupois = 175 oz. Troy.

Avoirdupois Weight.

Troy Weight.

			lb.	oz.	dwts.	grs.	grs.
1 lb	-	-	=	1	2	11	16 = 7000
1 oz.	-	-	=	0	0	18	$5\frac{1}{2}$ = $437\frac{1}{2}$
1 dr.	-	-	=	0	0	1	$3\frac{1}{3}$ = 27.35

Troy Weight.

Avoirdupois Weight nearly.

				lbs.	oz.	dr.
1 lb.	-	-	=	0	13	$2\frac{3}{4}$
1 oz.	-	-	=	0	1	$1\frac{1}{2}$

The grain of every country is an uniform weight, but the grains of different countries vary from each other.

The measures of liquids also differ, one being used for beer, and another for wine; we adopt the latter, and employ for liquids, measures which are derived from the wine gallon.

The wine gallon is defined by the statutes of the realm, and we divide it for medical purposes in the following manner, viz.

The gallon <i>Cong.</i>	}	contains	Eight pints	0
The pint			Sixteen fluidounces	12
The fluidounce			Eight fluidrachms	83
The fluidrachm			Sixty minims.	m

We have added the signs by which we denote the several measures.

That no error may arise from the indiscri-

minate use of the same terms to express both weights and measures, we have, after due consideration, devised certain new ones, which use will in a short time render easy.—Moreover, we measure the smaller divisions of liquids by a glass measure marked at equal distances ; for the number of drops is a fallacious and uncertain mode of division, since compared with those of water, almost double the number of drops of any tincture are required to fill the same measure.

A most important change is now first adopted in the mensuration of liquids and the division of the wine pint, by which it is intended to introduce accuracy in the measurement of quantities of liquids below one drachm. For these the table of no former Pharmacopœia has provided, but as some such were always absolutely necessary in daily practice, so the uncertain method of drops was adopted, and has been generally received. The number of drops contained in one fluidrachm has been assumed to be sixty ; and taking water as a standard, this number, though by no means accurate, would still be sufficiently correct for ordinary purposes ; but when other liquids of less specific gravity are used, a much larger number is required to fill the same measure : thus of proof spirit 140 drops are required to equal the bulk of sixty of water dropped from the same vessel. If, therefore, in the composition of medicines, measures suited to the standard of water were used *occasionally* only, and it was generally assumed that sixty drops were equal to one fluidrachm, and one fluidrachm of tincture of opium was substituted for sixty

drops prescribed, twice the dose intended would be given. It may be further objected to the use of drops; that their bulk is influenced by the quantity of liquid contained in the bottle from which they fall, by the thickness of the lip, and even by inequalities in the different parts of the lip of the same bottle; that volatile liquids to which this mode is most commonly applied, are thus exposed with extensive surfaces and their evaporation promoted; and on every account the adoption of some decisive, convenient, and uniform substitute became necessary. The subdivisions of the wine pint are therefore extended to the sixtieth part of the fluidrachm, and glass measures expressive of such subdivisions are adopted by the College. These will be as uniform and constant as the weights employed for solids; the accuracy of the former as well as of the latter being, of course, dependent upon precision in their construction, which is not more difficult to be attained in one than in the other instance. Similar Latin terms and characters have been heretofore used to express the weights of solids and the measures of liquids, and thus very different quantities have, in fact, been expressed by the same name; an error which became more evident when it was proposed to extend it still farther, and to call the least division of liquids by the name of a grain. This similarity has been a source of complaint from the time of Galen (*De compos. Medicam.* 1. 6, 98), and, on adopting more minute divisions of liquids, the College resolved also to assume certain arbitrary terms which may distinguish between them and the weights of solids; and in those taken, they have, with respect to measures of ounce and drachm, which are in most common use, been anxious to do as little violence as possible to established habits, consistent with the distinction at which they have aimed; and which they have also upon the same principles extended to the signs by which

such measures may be designated. In our own language the term *pint* is sufficiently distinct from *pound*, and may still be retained as a translation of *octarius*. In the banishment however of a particular practice from pharmacy, the banishment of the term immediately expressing it, and forcing it upon the recollection, became also necessary ; for this reason the word *drop* could not be retained to signify the sixtieth part of a fluidrachm, and the coinage of a new one has been resorted to.

The College have adopted the glass measures originally invented by the late Mr. Timothy Lane, F. R. S. in which the standard wine gallon of the Exchequer is divided into 61,440 parts, now called *minims*, and which are applicable with accuracy to the mensuration of the smallest of these quantities. By an act of parliament, 14 Ann, the wine gallon is fixed at 231 cubic inches, and the weight of the standard exchequer gallon of water at a temperature of 63°, and barometrical pressure = 29, 52, is 58, 176 Troy grains.

It will further be remembered, that the use of measures or weights made by any particular person is not insisted upon ; and provided they be accurate, it is of no importance where or how they are procured.

Perhaps sufficient attention is scarcely paid in general to the state of scales and weights: they are necessarily exposed, in the shop of the Apothecary, to circumstances under which their accuracy is impaired, and they require greater care on this account. The beam should remain in equilibrio even if the scales be changed, and it should turn with a very small addition to its weight ; the sort used in the shops may easily be procured so nice as to be influenced by $\frac{1}{100}$ th of a grain.

I had intended to subjoin to this translation a table of the relative value of drops and measure, but I found the former

so very variable, that it could not be applicable under any alteration of circumstances, and therefore it seemed better to omit it altogether*.

I subjoin the following table of proportions as was done to weights.

Pint.	Fluidounce.	Fluidrachm.	Minim.
1	= 16	= 128	= 7680
	1	= 8	= 480
		1	= 60

In addition to this explanation it is further to be observed, that in this book we define the quantity of *dry* articles by *weight*, and that of *liquids* by *measure*, unless it be otherwise expressed.

Care is to be taken that neither copper nor lead enter into the composition of the substances from which mortars, measures, funnels, or other vessels, in which medicines are either prepared or kept, are made. Moreover, vessels of earthen-ware whose surfaces are glazed by lead are improper.

This injunction is repeated from the former Pharmacopœia, and extended still farther to a prohibition of those vessels whose surfaces are covered with a glaze of lead. In many instances the reduction of substances to powder requires mortars to be used of large size, and sufficient strength to

* A useful pamphlet upon this subject has been published by Mr. Shuttleworth of Liverpool.

bear the application of considerable force; these were formerly made of the composition called *bell-metal*, which still keep their place, through improperly, in many shops; mortars of iron ought to be substituted for them. In the present system, however, the reduction of substances to powder is only occasionally practised by the apothecary; this is most commonly done upon the large scale by drug-mills in the first instance, and the article is thus supplied to the shops in the state of powder fitted at once for use. Now this is one of the modern facilities and arrangements of trade which cannot be too cautiously looked after. The proprietor of the mills, perhaps, returns for a given weight of the gross article four-fifths, taking the difference for the use of his machinery and the necessary loss in preparation. He has also the power of substituting or mixing in an inferior article without much fear of detection, since when those external qualities, by which the goodness of drugs is chiefly estimated, are lost, it is very difficult indeed, if not impossible, to identify them. Any man who occasionally looks at the drug sales of the metropolis, will find very large proportions of refuse articles which ought to be destroyed; these, nevertheless, find purchasers, and under the conveniences which the form of powder gives, are often dealt out to the consumer blended in a masterly manner, under the character of drugs of superior quality. It is therefore desirable that the Apothecary should powder his own drugs; and a large iron mortar, or what is still better, a small hand-mill will effect this in a sufficient degree for the consumption of any ordinary concern, excepting in a few articles, which are harder, and therefore more difficultly broken down.

Where substances are insoluble in water, the addition of water so as to form them into a paste may be usefully made, with which they are to be rubbed or levigated in a mortar

till of sufficient fineness; this prevents loss and inconvenience from quantities of the finer powder being scattered about in dust. The mode of separation of powders of such substances of an equal degree of fineness will be spoken of hereafter.

Vessels for evaporation, or any preparation of liquids or vegetable juices, should be preferred of stone ware, or Wedgwood's ware, though practically no injury arises in the preparation of extracts from the use of tin evaporators kept clean for the purpose, and in their application such will be often found to be most especially convenient. Measures should be of glass, or if they be required for large quantities, of earthen-ware, and by no means of pewter or any metallic composition.

Preparations of the acids, alkalies, earths, or metals, and also salts of every kind, ought to be kept in stopped glass bottles.

We measure degrees of temperature by Fahrenheit's thermometer, and when we direct a boiling heat (*calor fervens*), we mean a temperature of 212° . A gentle heat (*calor lenis*), denotes a temperature between 90° and 100° .

Fahrenheit's thermometer is commonly employed in this country, and therefore is here adopted. All thermometric divisions are arbitrary, and different ones are used in different countries. It may be useful to affix the following formulæ for ascertaining the corresponding degree of Fahrenheit with Reaumur's scale, which is mostly used

on the continent, and with the centigrade scale of modern France.

Fahrenheit divides the space between the freezing and boiling point of water into 180°, and considers the former as 32°, in a similar scale ascending from zero, so that his boiling point is 212°.

Reaumur divides the same space into 80°, and considers the freezing point of water as zero, and its boiling point as 80°.

Hence $180\text{ F} = 80\text{ R}$, and $9\text{ F} = 4\text{ R}$, and to reduce the degree of Reaumur to that of Fahrenheit, we have $\frac{\text{R} \times 9}{4} + 32$ which gives the corresponding degree of Fahrenheit. The centigrade thermometer of the French, like that of Celsius used in Sweden, divides the same space into 100 degrees, so that $180\text{ F} = 100\text{ C}$, and $9\text{ F} = 5\text{ C}$, and to reduce the degrees to those of F, we have $\frac{\text{C} \times 9}{5} + 32$, that is, multiply the degree in both instances by 9, and divide by 4 for the former, by 5 for the latter, and to the quotient add 32, which will give the corresponding degree of Fahrenheit. Or the converse of these operations will convert Fahrenheit's degrees into corresponding ones of either of the other scales.

Two definitions of temperature are also assumed with sufficient accuracy for practical use, and it would be a very desirable thing if we could more approximate to precision, in describing or regulating the higher degrees of heat produced by naked fires, upon the uniformity of which the powers of some of the most active medicines considerably depend. This may be imperfectly done by attending to the form and size of the furnace, to the quantity of air admitted, to the size and nature of the fuel employed, and to the mutual relations of these to each other; and, above

all, by practical experience in their management: but there is no instrument at present in use that can be satisfactorily and conveniently applied to this purpose.

When we speak of Specific Gravity, we suppose the substance mentioned to be of the temperature of 55° .

A Water Bath is applied when any substance, contained in a suitable vessel, is exposed either to boiling water, by immersion in it, or to the steam thereof, that it may be heated.

A Sand Bath consists of sand which is to be gradually heated, and into which any substance, contained in a suitable vessel, is immersed.

Two methods of increasing temperature are defined for the convenience of subsequent application, and the first of them, the *Water Bath*, is now extended to the application of the same temperature by steam, as well as immediate immersion in the water, which, in the preparation of various articles, especially extracts, is much more convenient. The fact, that water, saturated with muriate of soda, requires a higher temperature to make it boil, and that a heat of 230° may be thus occasionally applied to substances immersed therein, was the foundation of the use of a salt bath in the former Pharmacopœia; but a temperature of 212° is considered fully sufficient for all the preparations which are required, and it has been judged proper to retain only the means of applying it.

The Sand Bath may have its heat raised to redness, and it is often required to be so, but the gradual transmission of heat through this medium prevents that destruction of glass vessels which more sudden changes of temperature are apt to occasion, and it is also more manageable in itself; hence it has great advantages in the majority of processes over a naked fire.

The following explanation of some other operations employed in pharmacy may not be useless.

Filtration is a mode of separating from liquids those solid substances which differ but little in their specific gravity, and subside but slowly. For the nicer purposes of Pharmacy, bibulous paper must be used folded into a conical form and placed within a funnel; it should be colourless, which may be easily obtained, and therefore not the blotting paper of ordinary use. For other preparations, linen, woollen, or cotton cloths may be employed, which allow the liquid to pass readily through them, and which, therefore, are especially applicable to solutions of vegetable matters, and separation of them from their insoluble parts when required for immediate use. The stronger acids which would destroy filters made of animal or vegetable matter, if they require filtration, must be passed through pounded glass, retained in the funnel by a few larger pieces first introduced into its neck. For the separation of supernatant liquids from substances of great specific gravity, and which readily subside to the bottom, *Decantation* is used; which means, that the fluid shall be carefully poured off without disturbing the heavier substance which has subsided to the bottom.

Evaporation is used for separating water or any other volatile fluid from those which are fixed in the same degree of heat. It is therefore performed by the application of heat, and it is promoted by using shallow vessels, and extending

the surface of the fluid as much as possible. Where it is an object to collect the volatile fluid, the operation is called *Distillation*, which is performed in vessels, suited to the particular quantity and purpose : such as, a retort and receiver, or a common still. When solids are separated from each other, by the greater volatility of one in a given temperature, the operation is called *Sublimation*.

When solid substances are rendered liquid by the application of heat, it is called *Fusion*: when by the chemical agency of a liquid, their attraction of aggregation is destroyed, and both unite into a transparent liquor, it is called *Solution*; this last is one great object of pharmacy, and may for the most part be assisted by moderate heat and by shaking or agitating the two together. If the aggregation between the parts of a solid substance be broken down mechanically, and a liquid effused thereon be rendered turbid by suspension of the powder in it, and does not become transparent, nor the powder lose its solid mode of existence, it is called *Mixture*.

In other operations of pharmacy, dissolved substances are separated from their solutions by other additions made thereto, and they are thus obtained in a solid state; this is called *Precipitation*.

MATERIA MEDICA.

In the second column, *Vegetables* are named according to Willdenow's edition of the *Species Plantarum* of Linnæus, (*Berlin*, 1797, *et seq.*): *Animals*, according to Gmelin's edition of the *Systema Naturæ* of Linnæus, (*Leyden*, 1789, *et seq.*): and *Chemical Substances* according to the modern nomenclature; unless it be otherwise expressed.

A

Abiētis Resina,
Resin of the spruce
fir.

Pinus Abies,
The concrete resin,
Sp. Plant. Willden.
iv. 506.
Med. Bot. t. 208.

Absinthium,
Common Wormwood.

Artemisia Absinthium,
S. P. W. iii. 1844.
M. B. t. 122.
Smith. Fl. Brit. 864.

Note. I have added to this Catalogue, references to the volume and page of Willdenow's *Species Plantarum*, and to the plates of all those plants which are figured in Woodville's *Medical Botany*. The indigenous plants I have also referred to the page of Smith's *Flora Britannica* (Lond. 1806.), and I have marked the quantity of the words used medically.

Acāciæ Gummi, <i>Acacia gum, called</i> <i>Gum Arabic.</i>	Acacia vera. <i>The Gum.</i> S. P. W. iv. 1085. M. B. t. 67. <i>Mimosa</i> <i>nilotica.</i>
Acetōsæ Folia, <i>Common Sorrel leaves.</i>	Rumex Acetosa. <i>The Leaves.</i> S. P. W. ii. 260. M. B. t. 69. S. F. B. 396.
Acetosella, <i>Common wood Sorrel.</i>	Oxalis Acetosella, S. P. W. ii. 780. M. B. t. 20. S. F. B. 491.
Acētum, <i>Vinegar.</i>	Impure acetic acid.
Acidum sulphūricum, <i>Sulphuric acid.</i>	Sulphuric acid.
The specific Gravity is to that of distilled Water as 1,850 to 1,000. which is also as 37 to 20.	
Aconīti Folia, <i>Aconite leaves, or</i> <i>Monk's hood.</i>	Aconitum Napellus. <i>The Leaves.</i> S. P. W. ii. 1235. M. B. t. 6.

Adeps,	Sus Scrofa. <i>The Lard.</i>
<i>Hog's Lard.</i>	Gmelin, Syst. Nat. 216.
Ærūgo,	Impure Subacetate of
<i>Verdigris.</i>	Copper.
Allii Radix,	Allium sativum.
<i>Garlic Root.</i>	<i>The Root.</i>
	S. P. W. ii. 68.
	M. B. t. 168.
Aloës spicātæ Ex-	Aloë spicata.
tractum,	<i>The Extract.</i>
<i>Extract of spiked Aloe,</i>	
<i>called Socotrine Aloes.</i>	
Aloës vulgāris Extrac-	Aloë vulgaris.
tum,	<i>The Extract.</i>
<i>Extract of common Aloe,</i>	Sibthorp Flor. Græc.
<i>called Barbadoes</i>	
<i>Aloes.</i>	

As a full description of this plant will be given in Sibthorp's great work now under publication, that author is therefore quoted. Dr. Smith, the Editor of it, says, that the plant described under the above name, is asserted by Sibthorp to be the true *Αλόη* of Dioscorides, which is described as producing our officinal Barbadoes Aloes, by Sloane, in his History of Jamaica (Vol. i. p. 245).

Althææ Folia & Radix, Althæa officinalis.

<i>Marshmallow Leaves</i>	<i>The Leaves and Root.</i>
<i>and Root.</i>	S. P. W. iii. 770.
	M. B. t. 53.
	S. F. B. 739

Alumen,	Supersulphate of argill
<i>Alum.</i>	and potass.

Ammoniaë Murias,	Muriat of ammonia.
<i>Muriat of Ammonia.</i>	

Ammoniacum,	Heracleum gummife-
<i>Gum Ammoniac.</i>	rum.

The Gum-resin.

Willd. Hort. Berolin.

This plant, described in the above work (tom. i. pl. 53, 54.) for the first time, was raised in the Royal Garden at Berlin, by Willdenow, from the seeds taken out of the Ammoniacum of the shops, which, it is well known, often contains them. The author declares himself to be satisfied, that this drug is produced by *Heracleum gummiferum*, though he has not been successful in his endeavours to procure it from the plants raised at Berlin.

Amygdāla amāra,	}	{	Amygdalus commu-
			nis. <i>The Kernel.</i>

—————dulcis,
Bitter and Sweet
Almond.

Var. γ

Var. β

S. P. W. ii. 982.

M. B. t. 83.

Amŷlum,
Starch.

Triticum hybernum.

Starch of Wheat.

S. P. W. i. 477.

Anēthi Semina,
Dill Seed.

Anethum graveolens.

The Seed.

S. P. W. i. 1469.

M. B. t. 159.

Anīsi Semina,
Aniseed.

Pimpinella Anisum.

The Seed.

S. P. W. i. 1473.

M. B. t. 180.

Anthemīdis Flores,
Common Chamomile
Flowers.

Anthemis nobilis.

The single Flowers.

S. P. W. iii. 2180.

M. B. t. 103.

S. F. B. 904.

Antimōnii Sulphurē-
tum,

Sulphuret of antimony.

Sulphuret of Antimony.

Argentum,
Silver.

Refined Silver.

Armorāciæ Radix,
Horse Radish Root.

Cochlearia Armoracia.

The Root.

S. P. W. iii. 451.

M. B. t. 150.

S. F. B. 690.

Arsenici Oxŷdum,
Oxyd of Arsenic.

White Oxyd of Arsenic.

Asāri Folia,
Asarabacca Leaves.

Asarum Europæum.

The Leaves.

S. P. W. ii. 838.

M. B. t. 86.

S. F. B. 509.

Assafoetida Gummi- Ferula Assafoetida.
 resina, *The Gum Resin.*
Assafoetida Gum Resin. S. P. W. i. 1413.

This is the plant described and figured by Kæmpfer (*Amœnitates Exoticæ*), whose fidelity has never been impeached, and whose account of the species yielding that valuable drug is to be considered as at least equally admissible with any other. The plant raised by Dr. Hope, of Edinburgh (Phil. Trans. V. 75. Med. Bot. t. 8), from seeds sent to Dr. Guthrie, of St. Petersburg, from the mountains of Ghian, in Persia, is certainly different, and now bears the name of *Ferula Persica* (Willdenow, *Sp. Plant.*); but both one and the other may be supposed to yield a similar juice, and the difference of the species is not to be wondered at, as the *Ferula Assafoetida* grows in the south of Persia, and the *Persica* in the north.

Ayēnæ Semina, Avena sativa.
 Oats. *The decorticated Seeds*
called Grits.

S. P. W. i. 8446.

Aurantii Baccæ, Citrus Aurantium.
Seville Oranges. *The Berries.*

S. P. W. iii. 1427.

M. B. t. 183.

Aurantii Cortex, *The external Rind of*
 Orange Rind. *the Berry.*

B.

Balsāmum Peruviā- Myroxylon peruiferum.
 num, *The Balsam.*
Peruvian Balsam. S. P. W. ii. 546.

Balsamum Tolutānum, Toluifera Balsamum.

Tolu Balsam.

The Balsam.

S. P. W. ii. 545.

M. B. t. 193.

Belladonnæ Folia,

Atropa Belladonna.

Deadly Nightshade

The Leaves.

Leaves.

S. P. W. i. 1017.

M. B. t. 1.

S. F. B. 255.

Benzöinum,

Styrax Benzöin.

Benzoin.

The Balsam.

S. P. W. ii. 623.

M. B. t. 72.

Bistorta,

Polygonum Bistorta.

Great Bistort.

The Root.

S. P. W. ii. 441.

M. B. t. 34.

S. F. B. 427.

C.

Cajupūti Oleum,

Melaleuca Cajuputi.

Cajuputi Oil.

The essential Oil.

This oil was supposed to be the produce of *Melaleuca Leu- cadendron* (Med. Bot. t. 229), but it appears from specimens of the tree yielding the true Cajuputi, sent home by Mr. Christopher Smith, that the species is different, and referable to tab. 17, of Rumphius's *Herbarium Amboinense* (vol. ii.), and not to that author's "*Arbor alba*," tab. 16. After a

careful examination of specimens in Sir Joseph Banks's, and other collections by Dr. Maton, and of those in the Linnæan Herbarium by Dr. Smith, we are authorized to consider the tree which yields the above oil as a new species, and, from the name of its medicinal product, those gentlemen have agreed to give to it the appellation of (*Melaleuca*) *Cajuputi*.

Calamīna,

Calamine.

Impure Carbonate of

Zinc.

Calāmi Radix,

Sweet Flag Root.

Acorus Calamus.

The Root.

S. P. W. ii. 199.

M. B. t. 173.

S. F. B. 373.

Calumbæ Radix,

Calumba Root.

The Root of a Plant not yet named.

The name of *Columbo root*, by which this article has hitherto been known in our shops, seems to have had its origin in the supposition that the root was brought to us from Ceylon; a supposition apparently strengthened by the similarity in sound of the Portuguese appellation of *Calumba* to the name of the principal town of that island. It being a staple export with the Portuguese, the place of growth was carefully concealed, and the plant itself was unknown to botanists, until very lately, when it was raised at Madras from a root brought to Dr. James Anderson, of that place, from Mozambique. From a drawing in the possession of the Linnæan Society, the plant appears to be of the natural order of *Menispermum*, but the genus cannot be determined, in consequence of the female flowers not having been as yet seen.

Cambōgia,
Camboge.

Stalagmitis Cambogi-
öides.

The Gum Resin.

S. P. W. iv. 980.

Camphōra,
Camphor.

Laurus Camphora.

*A peculiar concrete
Substance prepared
by distillation.*

S. P. W. ii. 478.

M. B. t. 155.

Canellæ Cortex,
Canella Bark.

Canella alba. *The Bark.*

S. P. W. ii. 851.

M. B. t. 117.

Capsīci Baccæ,
*Capsicum Berries, called
Cayenne Pepper.*

Capsicum annuum.
The Berries.

S. P. W. i. 1050.

M. B. t. 144.

Carbo Ligni.
Charcoal.

Fresh burnt Charcoal.

Cardamīnes Flores,
Cuckow Flower.

Cardamine pratensis.
The Flower.

S. P. W. iii. 487.

M. B. t. 30.

S. F. B. 699.

Cardamōmi Semina,
Cardamom Seeds.

Elettaria Cardamo-
mum.

Maton in Act. Soc.
Lin.

From an accurate description of the plant producing this valuable aromatic, communicated to the Linnæan Society by Mr. White, Surgeon of Madras (who, following the example of other botanical writers, improperly refers it to the genus *Amomum*), it has been thought necessary to place the Cardamom under a new genus, which Dr. Maton has named *Elettaria*, from *Elettari*, the original name of this tribe in the *Hortus Malabaricus*.

Caricæ Fructus,

Figs.

Ficus Carica.

The preserved Fruit.

S. P. W. iv. 1131.

M. B. t. 130.

Carui Semina,

Common Carraway

Seeds.

Carum Carui.

The Seeds.

S. P. W. i. 1470.

M. B. t. 45.

S. F. B. 320.

Caryophylli,

Cloves.

Eugenia caryophyllata.

The unopened Flowers dried.

S. P. W. ii. 965.

M. B. t. 135.

Caryophylli Oleum,
Oil of Cloves.

The essential Oil of the Cloves.

Cascarillæ Cortex,

Cascarilla Bark.

Croton Cascarilla.

The Bark.

S. P. W. iv. 531.

M. B. t. 41.

- | | |
|-----------------------------|------------------------------|
| Cassiæ Pulpa, | Cassia fistula. |
| <i>Purging Cassia Pulp.</i> | <i>The Pulp of the pods.</i> |
| | S. P. W. ii. 518. |
| | M. B. t. 163. |
| Castoręum, | Castor Fiber, (Russian) |
| <i>Castor.</i> | <i>A peculiar concrete</i> |
| | <i>substance.</i> |
| | G. S. N. 124. |
| Catechu Extractum, | Acacia Catechu, |
| <i>Catechu Extract.</i> | <i>Extract.</i> |
| | S. P. W. iv. 1079. |
| | M. B. t. 66. |
| | <i>Mimosa Catechu.</i> |
| Centaurii Cacumina, | Chironia Centaurium. |
| <i>Common Centaury</i> | <i>The Tops.</i> |
| <i>Tops.</i> | S. P. W. i. 1068. |
| | M. B. t. 157. |
| | S. F. B. 257. |
| Cęra alba, | |
| <i>White wax.</i> | |
| Cęra flava, | |
| <i>Yellow wax.</i> | |
| Ceręvisię Fermentum, | |
| <i>Yest.</i> | |

Cetāceum,
Spermaceti.

Physeter macrocephalus.

A peculiar concrete substance.

S. N. G. 227.

Cinchonæ cordifoliæ *Cinchona cordifolia.*

Heart-leaved Cinchona The Bark.

Bark, called Yellow Bark.

Gen. Char.

S. P. W. i. 957.

Cinch. offic.

M. B. t. 200.

Cinchonæ lancifoliæ *Cinchona lancifolia.*

Lance-leaved Cinchona The Bark.

Bark, called Quilled Bark.

Cinchonæ oblongifoliæ *Cinchona oblongifolia.*

Oblong-leaved Cincho- The Bark.

na Bark, called Red Bark.

Zea in Anal. de Hist. Nat.

These names of our three medicinal barks of the genus *Cinchona* were originally given in a publication, entitled, *Papel Periodico de Santa Fé* (1792), by Dr. Mutis, who, from a residence of more than forty years in South America, had the best opportunities hitherto obtained by any botanist of investigating this important tribe, and whose observations are

more fully detailed in his pupil Zea's communications to the *Annals of Natural History*, published at Madrid (1800, tom. ii. p. 196). The *Cinchona officinalis* of Linnæus proves to have been named from specimens of the tree producing the yellow bark, (the *C. cordifolia* of Zea) which were sent to him by Mutis, and, through mistake, confounded by the great Swedish botanist with the true Peruvian bark received from Condamine, in compliment to whom, as our earliest authority, the tree has been named by Humboldt and Bonpland, in their *Plantes Equinoxiales* (tom. i. p. 33), *Cinchona condaminea*. We prefer, however, the prior and more scientific trivial name of *lancifolia*.

The *C. cordifolia* of Mutis and Zea, is the *C. macrocarpa* of Willdenow (*Sp. Plant.*), from whose authority we think it necessary to deviate in this instance for the reasons before alluded to.

Cinnamōmi Cortex.	Laurus Cinnamomum.
<i>Cinnamon Bark.</i>	<i>The inner Bark.</i>

S. P. W. ii. 477.

M. B. t. 27.

Cinnamōmi Oleum,	<i>Its essential Oil.</i>
<i>Cinnamon Oil.</i>	

Coccus,	Coccus Cacti.
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<i>Cochineal.</i>	G. S. N. 2220.
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Colchīci Radix,	Colchicum autumnale.
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<i>Meadow Saffron root.</i>	<i>The fresh Root.</i>
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S. P. W. ii. 272.

M. B. t. 177.

S. F. B. 399.

Colocynthidis Pulpa,	Cucumis Colocynthis.
<i>Bitter Cucumber Pulp.</i>	<i>The Pulp of the Pome.</i>
	S. P. W. iv. 611.
	M. B. t. 175.
Conii Folia,	Conium maculatum.
<i>Common Hemlock</i>	<i>The Leaves.</i>
<i>Leaves.</i>	S. P. W. i. 1395.
	M. B. t. 22.
	S. F. B. 302.
Contrajervæ Radix,	Dorstenia Contrajerva.
<i>Contrajerva Root.</i>	<i>The Root.</i>
	S. P. W. i. 683.
	M. B. t. 51.
Copaiba,	Copaifera officinalis.
<i>Copaiba.</i>	<i>The liquid Resin.</i>
	S. P. W. ii. 630.
	M. B. t. 137.
Coriandri Semina,	Coriandrum sativum.
<i>Common Coriander</i>	<i>The Seed.</i>
<i>Seeds.</i>	S. P. W. i. 1448.
	M. B. t. 181.
	S. F. B. 320.
Cornua,	Cervus Elephas.
<i>Stag's Horns.</i>	<i>The Horn.</i>
	S. N. G. 176.
Creta,	Friable Carbonate of
<i>Chalk.</i>	Lime.

Croci Stigmata,
Saffron.

Crocus sativus, (En-
glish.)

The Stigmata.

S. P. W. i. 194.

M. B. t. 176.

S. F. B. 39.

Cumīni Semina,
Cumin Seed.

Cuminum Cyminum.

The Seed.

S. P. W. i. 1440.

M. B. t. 191.

Cupri Sulphas,
Sulphate of Copper.

Sulphate of Copper.

Cuspāriæ Cortex,

Cusparia febrifuga.

Cusparia Bark, called The Bark.

Angustura Bark. Bonpland Voyage.

The bark brought to us from Angustura has at length been discovered by M. M. Humboldt and Bonpland, the celebrated travellers in South America, to belong to a tree not before known, which they promise to describe under the above name in their superb work the *Plantes Equinoxiales*.

Cydōniæ Semina,
Quince Seed.

Pyrus Cydonia.

The Seed.

S. P. W. ii. 1020.

M. B. t. 79.

D.

Dauci Radix,
Carrot Root.

Daucus Carota,
(Cultivated).

The Root.

Dauci Semina,
Wild Carrot Seed.

Daucus Carota, (Wild).
The Seed.

S. P. W. i. 1389.

M. B. t. 161.

S. F. B. 300.

Digitālis Folia,
Purple Fox Glove
Leaves.

Digitalis purpurea.
The Leaves.

S. P. W. iii. 283.

M. B. t. 24.

S. F. B. 665.

Dōlīchi Pubes,
Cowhage.

Dolichos pruriens.
The Bristles of the Pods.

S. P. W. iii. 1041.

M. B. t. 172.

Dulcamāræ Caulis,
Woody Night-shade
Stalks.

Solanum Dulcamara.
The Stalks.

S. P. W. i. 1028.

M. B. t. 33.

S. F. B. 256.

E.

Elatērii Poma,
Wild Cucumbers.

Momordica Elaterium.
The fresh Fruit.

S. P. W. iv. 605.

M. B. t. 43.

Elēmi,
Elemi.

Amyris Elemifera.
The Resin.

S. P. W. ii. 333.

Euphorbiæ Gummi- Euphorbia officina-
resina, rum.

Euphorbium. *The Gum-Resin.*

S. P. W. ii. 884.

F.

Farīna, Triticum hybernum.

Flour. *The Flour.*

Ferrum, Iron Filings and Wire.

Iron.

Filicis Radix, Aspidium Filix Mas.

Male Fern Root. *The Root.*

S. F. B. 1121.

M. B. t. 49. *Poly-*
podium Filix Mas.

Fūcus, Fucus vesiculosus.

Bladder Fucus, or Sea

Wrack.

G.

Galbāni Gummi-re- Bubon Galbanum.

sina, *The Gum Resin.*

Galbanum Gum-resin. S. P. W. i. 1439.

M. B. t. 12.

Gallæ, Cynips Quercus folii.

Galls. *The Nut.*

S. N. G. i. 2650.

Gentiānæ Radix,
Gentian Root.

Gentiana lutea.
The Root.

S. P. W. i. 1331.

M. B. t. 156.

Glycyrrhizæ Radix,
Liquorice Root.

Glycyrrhiza glabra.

S. P. W. iii. 1144.

M. B. t. 167.

Granāti Cortex,
Pomegranate Bark.

Punica Granatum.

The Bark of the Fruit.

S. P. W. ii. 981.

M. B. t. 58.

Guaiāci Resina et

Guaiacum officinale.

Lignum,

The Resin and Wood.

*Guaiacum Resin and
Wood.*

S. P. W. ii. 538.

M. B. t. 16.

H.

Hæmatoxŷli Lignum, Hæmatoxylon Campe-
Log Wood.

chianum.

The Wood.

S. P. W. ii. 547.

M. B. t. 17.

Hellebōri foetidi Folia, Helleborus foetidus.

*Stinking Hellebore
Leaves.*

The Leaves.

S. P. W. ii. 1337.

M. B. t. 19.

S. F. B. 598.

Hellebōri nigri Radix, Helleborus niger.

Black Hellebore Root. The Root.

S. P. W. ii. 1336.

M. B. t. 18.

Hordei Semina,

Hordeum distichon.

Pearl Barley. The Seed husked.

S. P. W. i. 473.

Humūli Strobili,

Humulus Lupulus.

Hops. The Strobiles dried.

S. P. W. iv. 769.

S. F. B. 1077.

Hydrargyrus.

Quicksilver.

Hyoscyami Folia & Hyoscyamus niger.

Semina, The Leaves and Seed.

Common Henbane S. P. W. i. 1010.

Leaves and Seed. M. B. t. 52.

S. F. B. 254.

J.

Jalāpæ Radix,

Convolvulus Jalapa.

Jalap Root. The Root.

S. P. W. i. 860.

M. B. t. 21.

Ipecacuanhæ Radix, Callicocca Ipecacu-

Ipecacuan Root. anha. The Root.

Lin. Soc. Trans. Vol. vi.

This plant was figured and described, for the first time, in the 6th Vol. of the Transactions of the Linnéan Society, by Professor Brotero, of Coimbra, from observations made on living specimens in the Brazils, by D. Gomes, and from dried ones sent home to that Professor.

Junipĕri Baccæ et Ca- Juniperus communis.

cumina,

The Berries and Tops.

S. P. W. iv. 855.

M. B. t. 95.

S. F. B. 1085.

K.

Kino.

*The Gum Resin of a
non-descript African
Tree.*

L.

Lapis calcāreus,
Lime Stone.

Hard Carbonate of
Lime.

Lavandŭlæ Flores,
Lavender Flowers.

Lavandula Spica.
The Flowers.

S. P. W. iii. 60.

M. B. t. 55.

Lauri Baccæ et Folia, Laurus nobilis.

Bay Berries and Leaves. The Berries and Leaves.

S. P. W. ii. 479.

M. B. t. 32.

Lichen,

Lichen Islandicus.

Liver Wort.

M. B. t. 205.

Limōnes, Citrus medica.
Lemons. The Fruit.

S. P. W. iii. 1426.

M. B. t. 184.

Limonum Cortex, *Their external Rind.*
Lemon Peel.

Linum catharticum, Linum catharticum.

Purging Flax. S. P. W. i. 1541.

S. F. B. 344.

Lini usitatissimi Linum usitatissimum.

Semina, *The Seeds.*

Linseed. S. P. W. i. 1533.

M. B. t. 111.

S. F. B. 342.

Lytta, Lytta vesicatoria.

Blistering Fly. S. N. G. 2013.

M.

Magnesiæ Sulphas, Sulphate of Magnesia.
Sulphate of Magnesia.

Malva, Malva sylvestris.

Common Mallow. S. P. W. iii. 787.

M. B. t. 54.

S. F. B. 740.

Manna,

Manna.

Fraxinus Ornus.

The Juice concreted.

S. P. W. iv. 1104.

M. B. t. 36.

Marrūbium,

White Horehound.

Marrubium vulgare.

S. P. W. iii. 111.

M. B. t. 97.

S. F. B. 636.

Mastīche,

Mastich.

Pistacia Lentiscus.

The Resin.

S. P. W. iv. 753.

M. B. t. 152.

Mel,

Honey.

Mentha piperīta,

Pepper Mint.

Mentha piperita.

Smith Act. Soc. Lin.

Vol. v.

S. F. B. 614.

M. B. t. 169.

Mentha virīdis,

Spear Mint.

Mentha viridis.

Smith Act. Soc. Lin.

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S. F. B. 612.

M. B. t. 170.

Menŷanthes,

Buck-bean.

Menŷanthes trifoliata.

S. P. W. i. 811.

M. B. t. 2.

S. F. B. 225.

- Mezerëi Cortex, Daphne Mezereum.
Mezereon Bark. *The Bark of the Root.*
 S. P. W. ii. 415.
 M. B. t. 23.
 S. F. B. 420.
- Mori Baccæ, Morus nigra.
Mulberries. *The Fruit.*
 S. P. W. iv. 369.
 M. B. t. 129.
- Moschus, Moschus moschiferus.
Musk. *A peculiar substance.*
 S. N. G. 172.
- Myristicæ Nuclei, Myristica moschata.
Nutmegs. *The Kernels.*
 S. P. W. iv. 869.
 M. B. t. 134.
- Myrrha, *The Gum-resin of a non-*
Myrrh. *descript Tree.*
- Olibānum, *O.*
Olibanum. *The Gum Resin.*
- Juniperus Lycia.
The Gum Resin.
 S. P. W. iv. 855.
 M. B. t. 206.

Olivæ Oleum, Olea Europœa. *The ex-*
Olive Oil. *pressed Oil of the Fruit.*

S. P. W. i. 44.

M. B. t. 136.

Opium, Papaver somniferum.
Opium. *The concreted Juice*
 of the unripe Cap-
 sules (Turkey).

S. P. W. ii. 1147.

M. B. t. 185.

Opopōnax. Pastināca Opoponax.
 The Gum Resin.

S. P. W. i. 1466.

M. B. t. 113.

Origānum. Origanum vulgare.
Common Marjoram. S. P. W. iii. 135.

M. B. t. 164.

S. F. B. 639.

Ovum, Phasianus Gallus.

Egg. *The Egg.*

S. N. G. 737.

P.

Papāvēris Capsulæ, Papaver somnife-
White Poppy Capsules. *rum.*

The ripe Capsules.

S. P. W. ii. 1147.

M. B. t. 185.

S. F. B. 568.

- | | |
|--------------------------|--------------------------------|
| Petrolĕum, | |
| <i>Petroleum.</i> | |
| Pimentæ Baccæ, | Myrtus Pimenta. |
| <i>Pimenta Berries.</i> | <i>The Berries.</i> |
| | S. P. W. ii. 973. |
| | M. B. t. 26. |
| Piperis longi Fructus, | Piperlongum. |
| <i>Long Pepper.</i> | <i>The unripe Fruit dried.</i> |
| | S. P. W. i. 161. |
| | M. B. t. 188. |
| Piper nigrum, | Piper nigrum. |
| <i>Black Pepper.</i> | <i>The Berries.</i> |
| | S. P. W. i. 159. |
| | M. B. t. 187. |
| Pix arida, | Pinus Abies. |
| <i>Dried Pitch.</i> | <i>The prepared Resin.</i> |
| | S. P. W. iv. 506. |
| | M. B. t. 208. |
| Pix liquida, | Pinus sylvestris. |
| <i>Tar.</i> | <i>The prepared Resin.</i> |
| | S. P. W. iv. 494. |
| | M. B. t. 207. |
| | S. F. B. 1031. |
| Plumbum, | Lead. |
| <i>Lead.</i> | |
| Plumbi Carbonas, | Subcarbonate of Lead. |
| <i>Carbonate of Lead</i> | |
| <i>called Cerusse.</i> | |

Plumbi Oxydum semi-Semi-vitrified Oxyd of
vitreum, Lead.

*Semivitrified Oxyd of
Lead, called Li-
tharge.*

Porri Radix,
Leek Root.

Allium Porrum.

S. P. W. ii. 64.

M. B.

Potassæ Nitras,
Nitrate of Potass.

Purified Nitrate of
Potass.

This purification was formerly directed as a separate process, but it has been thought unnecessary to continue it, because the salt may readily be obtained in a very pure state as an article of trade.

Potassæ Supertartras, Supertartrate of Pot-
Supertartrate of Pot- ass purified.
ass, called Crystals
of Tartar.

Potassa impura,
Impure Potass.

Impure Carbonate of
Potass.

Pruna,
Prunes.

Prunus domestica.

The Fruit.

S. P. W. ii. 995.

M. B. t. 85.

Pterocarpi Lignum,
Red Saunders Wood.

Pterocarpus santalinus.

The Wood.

S. P. W. iii. 906.

M. B. t. 254.

Pulegium,
Penny-royal.

Mentha Pulegium.

S. P. W. iii. 82.

M. B. t. 171.

S. F. B. 624.

Pyræthri Radix,
Spanish Chamomile
Root.

Anthemis Pyrethrum.

The Root.

S. P. W. iii. 2184.

M. B. t. 104.

Q.

Quassia Lignum,
Quassia Wood.

Quassia excelsa.

The Wood.

S. P. W. ii. 569.

Quercus Cortex,
Oak Bark.

Quercus pedunculata.

The Bark.

S. P. W. iv. 450.

M. B. t. 126.

Q. Robur.

S. F. B. 1026.

Q. Robur.

R.

Resina flava,
Yellow Resin.

Pinus sylvestris.

*The residue after the
distillation of Oil of
Turpentine.*

Rhamni Baccæ,
Buckthorn Berries.

Rhamnus catharticus.
The Berries.

S. P. W. i. 1092.

M. B. t. 114.

S. F. B. 261.

Rhēi Radix,
Rhubarb Root.

Rheum palmatum.
The Root.

S. P. W. ii. 489.

M. B. t. 46.

Rhœādos Petala,
Red Poppy Petals.

Papaver Rhœas.
The Petals.

S. P. W. ii. 1146.

M. B. t. 186.

S. F. B. 567.

Ricīni Semina et Oleum,
Castor Seeds and Oil.

Ricinus communis.
*The Seeds and their
expressed Oil.*

S. P. W. iv. 564.

M. B. t. 61.

Rosæ canīnæ Pulpa, Rosa canina.

Dog Rose Pulp.

*The expressed Pulp
of the Berry.*

*The Fruit is called
the Hip.*

S. P. W. ii. 1077.

M. B. t. 139.

S. F. B. 549.

Rosæ centifoliæ Petala,	Rosa centifolia.
<i>Damask Rose Petals.</i>	<i>The Petals.</i>
	S. P. W. ii. 1071.
	M. B. t. 140.
Rosæ Gallicæ Petala,	Rosa Gallica.
<i>Red Rose Petals.</i>	<i>The Petals.</i>
	S. P. W. ii. 1071.
	M. B. t. 141.
Rosmarīni Cacūmina,	Rosmarinus officinalis.
<i>Rosemary Tops.</i>	<i>The Tops.</i>
	S. P. W. i. 126.
	M. B. t. 87.
Rubiæ Radix,	Rubia Tinctorum.
<i>Madder Root.</i>	<i>The Root.</i>
	S. P. W. i. 603.
	M. B. t. 68.
Rutæ Folia,	Ruta graveolens.
<i>The Leaves.</i>	<i>The Leaves.</i>
	S. P. W. ii. 542.
	M. B. t. 37.
S.	
Sabīnæ Folia,	Juniperus Sabina.
<i>Savine Leaves.</i>	<i>The Leaves.</i>
	S. P. W. iv. 852.
	M. B. t. 94.

Sacchārum, <i>Moist Sugar.</i>	} Saccharum officinarum. <i>Preparation from the expressed Juice.</i>
Sacchārum purificatum, <i>Double refined Sugar.</i>	
Salicis Cortex, <i>Great round-leaved Willow Bark.</i>	Salix Caprea. S. P. W. iv. 703. S. F. B. 1067.
Sambūci Flores, <i>Common Elder Flowers.</i>	Sambucus nigra. <i>The Flowers.</i> S. P. W. i. 1495. M. B. t. 78. S. F. B. 336.
Sapo durus, <i>Hard Soap.</i>	Soap made of Olive Oil and Soda. (Spanish.)
Sapo mollis, <i>Soft Soap.</i>	Soap made of Oil and Potass.
Sarsaparillæ Radix, <i>Sarsaparilla Root.</i>	Smilax Sarsaparilla. <i>The Root.</i> S. P. W. iv. 776. M. B. t. 194.
Sassafras Lignum et Radix, <i>Sassafras Wood and Root.</i>	Laurus Sassafras. <i>The Wood and Root.</i> S. P. W. ii. 485. M. B. t. 31.

Sināpis Semina, Sinapis nigra.

Common Mustard Seed. The Seed.

S. P. W. iii. 555.

M. B. t. 151.

S. F. B. 722.

Sodæ Murias, Muriate of Soda.

*Muriate of Soda, called
Sea Salt.*

Sodæ Boras, Sub-Borate of Soda.

*Borate of Soda, called
Borax.*

Sodæ Sulphas, Sulphate of Soda.

Sulphate of Soda.

Soda impura, Impure Subcarbonate
Impure Soda. of Soda.

Spartii Cacumina, Spartium scoparium.

Broom Tops. The Tops.

S. P. W. iii. 933.

M. B. t. 89.

S. F. B. 753.

Spigēliæ Radix, Spigelia Marilandica.

Indian Pink Root. The Root.

S. P. W. i. 825.

M. B. t. 105.

Spiritus rectificatus,

Rectified Spirit.

Its specific gravity

is to that of dis-
tilled Water as
,835 to 1,000.

Spiritus tenuior,

Proof Spirit.

Its specific gravity
is to that of dis-
tilled Water as
,930 to 1,000.

Spongia,

Sponge.

Stannum,

Tin.

Spongia officinalis.

S. N G. 3820.

Tin Filings.

Staphisāgriæ Semina, Delphinium Staphisa-
Staves Acre Seed. *gria. The Seed.*

S. P. W. ii. 1231.

M. B. t. 154.

Styrācis Balsamum, Styra^x officinale.

Storax Balsam.

The Balsam.

S. P. W. ii. 623.

M. B. t. 71.

Succinum,

Amber.

Sulphur,

Roll Sulphur.

Sulphur.

Sulphur sublimātum, Sublimed Sulphur.

Sublimed Sulphur.

T.

Tabăci Folia,
Virginian Tobacco.

Nicotiana Tabacum.
The dried Leaves.
(Virginian).

S. P. W. i. 1014.

M. B. t. 60.

Tamarindi Pulpa,
Tamarind Pulp.

Tamarindus indica.
The Pulp of the
Pod.

S. P. W. iii. 577.

M. B. t. 166.

Taraxaci Radix,
Common Dandelion
Root.

Leontodon Taraxacum.
The Root.

S. P. W. iii. 1544.

M. B. t. 3.

S. F. B. 822.

Terebinthina Cana-
densis,

Pinus Balsamea.
The liquid Resin.

S. P. W. iv. 504.

Canada Turpentine.

Terebinthia Chia,
Cyprus Turpentine.

Pistacia Terebinthus.
The liquid Resin.

S. P. W. iv. 752.

M. B. t. 153.

Terebintha vulgaris, Common Turpentine.	} Pinus sylvestris. <i>The</i> <i>liquid Resin and Oil</i> <i>distilled from it.</i> S. P. W. iv. 494. M. B. t. 207. S. F. B. 1031.
TerebinthinæOleum, Oil of Turpentine.	
Testæ, Oyster Shells.	
	Ostrea edulis. <i>The Shells.</i> S. N. G. 3334.
Tormentillæ Radix, Common Tormentil Root.	Tormentilla officinalis. S. F. B. 552. T. erecta. S. P. W. ii. 1112. M. B. t. 9.
Toxicodendri Folia, Sumach Leaves.	Rhus Toxicodendron. <i>The Leaves.</i> S. P. W. i. 1481.
Tragacantha, Tragacanth.	Astragalus verus. <i>The Gum.</i> Olivier Voyag. dans l'Empire Ottoman. M. B. t. 98.

We are indebted to the French traveller here cited for the discovery that the gum Tragacanth of commerce, is the produce of a species of Astragalus not before known. It is described and figured in the fifth volume of Olivier's Travels, under the name of *Astragalus verus*, being different both from the *A. Tragacantha* of Linnæus, and from the *A. gum-mifera* of Labillardiere. It grows in the north of Persia.

Tussilāgo, *Tussilago Farfara.*
Coltsfoot. S. P. W. iii. 1967.

M. B. t. 13.

S. F. B. 878.

V.

Valerianæ Radix, *Valeriana officinalis*
Great Wild Valerian (wood.)
Root. *the Root*

S. P. W. i. 177.

M. B. t. 96.

S. F. B. 38.

Verātri Radix, *Veratrum album.*
White Hellebore Root. *The Root.*

S. P. W. iv. 895.

M. B. t. 100.

Viölæ Flores, *Viola odorata.*
Sweet Violets. S. P. W. i. 1163.

M. B. t. 81.

S. F. B. 245.

Vinum, *Spanish White Wine,*
Wine. called in English,
Sherry.

U.

Ulmi Cortex, *Ulmus campestris.*
Elm Bark. *The inner Bark.*

S. P. W. i. 1324.

M. B. t. 197.

S. F. B. 281.

Uvæ passæ,

Raisins.

Vitis vinifera.

The prepared Fruit.

S. P. W. i. 1180.

M. B. t. 195.

Uvæ Ursi Folia,

*Red-berried trailing**Arbutus Leaves.*

Arbutus Uva Ursi.

The Leaves.

S. P. W. ii. 618.

M. B. t. 70.

S. F. B. 443.

Z.

Zincum,

Zinc.

Zinc.

Zingiberis Radix,

Ginger Root.

Zingiber officinale.

The Root.

Roscoe Trans. Lin.

Soc.

PREPARATIONS AND COMPOUNDS.

ACIDA, ACIDS.

ACIDUM ACETICUM.

ACETIC ACID.

Acetum distillatum. P. L. 1787. P. L. 1745. P. L. 1720.

TAKE of Vinegar, a gallon;

Distil the Acetic Acid in a sand-bath from a glass retort into a receiver also of glass, and kept cold; throw away the first pint, and keep for use the six succeeding pints, which are distilled over.

Vinegar is prepared in this country as an article of trade, by a second fermentation of wort or infusion of malt which has previously undergone the spirituous fermentation; and besides the soluble extraneous substances which the vegetable matter itself supplies, others are commonly added by the manufacturer, such as sulphuric acid and colouring matter. The object of the present process is to separate these, and to obtain the acetic acid of an uniform and sufficient strength. The use of glass vessels is intended to do away the possibility of the solution of either copper or lead, to the contact of which metals the acid is exposed if prepared in the ordinary way; yet, notwithstanding this caution, it will be found, from the convenience of its application to the

preparation of larger quantities, that the common copper still with a pewter worm, is most frequently employed. In the distillation a greater heat is not to be applied than is sufficient to keep the liquor moderately boiling, which it begins to do at 212° ; for if the heat be urged too far, or continued too long, it gives to the distilled acid an empyreumatic smell and taste which it ought not to possess. The first part which passes over on distillation is the water, slightly impregnated with acid; and, in order that the more acid part which subsequently follows may be stronger, the first one-eighth is directed to be thrown away, and the next six-eighths which pass form the *Acetic Acid* of the Pharmacopœia; the remaining one-eighth in the retort contains the saline, colouring, and mucilaginous matters, and the sulphuric acid; some acetic acid also remains, in a more concentrated state than that which has actually passed over; but the greater heat which would be required for its distillation would decompose the vegetable matter with which it is combined, and thus produce a strong empyreumatic smell and flavour, like that acetic acid which is actually obtained in higher temperatures by distillation of wood or other vegetable substances. Thus prepared it is considered to be sufficiently strong for all medical purposes; and therefore no second process is now given, as formerly, for obtaining a stronger acid by the decomposition of any of those salts of which it forms a part; especially since it is ascertained, that there is no other difference in the nature of the acid itself prepared in any of these ways, than that one is in a more concentrated state than the other (*Darracq. An. Chim. V. 41.*). If the acid be prepared correctly, it will be colourless, and of a grateful pungent peculiar acid taste. One fluidounce ought to dissolve at least ten grains of carbonate of lime (*White marble*).

ACIDUM BENZOÏCUM.

BENZOÏC ACID.

Flores Benzöes, P. L. 1787. *Flores Benzöini*, P. L. 1720.

Take of Benzöin, a pound and half.

Fresh Lime, four ounces.

Water, a gallon and half.

Muriatic Acid, four fluidounces.

Rub together the Benzoin and Lime, then boil them in a gallon of the Water for half an hour, constantly stirring, and when it is cold pour off the liquor. Boil what remains a second time in four pints of water, and pour off the liquor as before. Mix the liquors and boil down to half, then strain through paper, and add the muriatic acid gradually until it ceases to produce a precipitate. Lastly, having poured off the liquor, dry the powder in a gentle heat; put it into a proper vessel placed in a sand bath, and by a very gentle fire sublime the Benzoïc acid.

Benzöin is a concrete balsam, consisting of a peculiar acid mixed with resin; this acid is called Benzoïc, and it is the object of the present process to separate it. Chemists have effected this in various ways, either by sublimation, which gives beautiful foliated crystals, but requires to be repeated thrice, and pressed after each sublimation between bibulous

paper, to obtain them white and free from any adherent essential oil; this was the process of the last Pharmacopœia: or, by forming some of its soluble compounds, and afterward decomposing them so as to precipitate the acid: or, by simply boiling the Benzoin in water which dissolves the acid, and as it cools allows it to separate again. (*Deyeux*). The two former processes are here combined; first the acid is separated according to Scheele's method, this consists in forming a benzoate of lime, and adding to the solution thereof muriatic acid which precipitates the benzoic, while the new compound muriate of lime remains dissolved; secondly, this precipitate is subjected to one sublimation which gives its usual foliated crystalline appearance. The Edinburgh Pharmacopœia forms a benzoate of soda, precipitates the acid by sulphuric acid, and afterwards crystallizes it by solution in hot water, which dissolves a larger quantity than cold.

Benzoïc acid has a strong, pungent, aromatic, peculiar odour. Its crystals are ductile, not pulverizable; it sublimes in a moderate heat, forming a white, irritating smoke. It is soluble in about 24 times its weight of boiling water, which as it cools precipitates $\frac{1}{20}$ ths of what it had previously dissolved. It is soluble in alcohol. It may be crystallized by solution in boiling water, as by dissolving an ounce in a pint and a half of water, and afterwards allowing the solution to cool; or by sublimation; but as in its crystalline form it is not reducible to powder by mechanical means, it has been sometimes thought better suited to the purposes of medicine to keep it in that more divided state in which it is obtained by precipitation alone.

ACIDUM CITRICUM.

CITRIC ACID.

Take of Lemon Juice, a pint.

Prepared Chalk, an ounce, or as much as may be sufficient to saturate the Juice.

Diluted sulphuric Acid, nine fluid-ounces.

Add the Chalk by small portions at a time to the juice, whilst boiling, stirring it after each addition, and then pour off the liquor. Wash the Citrate of Lime which remains by repeated additions of fresh water, and then dry it. Add the diluted sulphuric acid to the dried powder, and boil it for ten minutes; then press it strongly through a linen cloth, and afterwards filter it through paper. Let the clear liquor which has passed evaporate in a gentle heat, so that crystals may form as it gets cold.

To render these crystals pure, dissolve them a second and third time in water, and after each solution filter the liquor, boil it down, and set it by to crystallize.

The general use of lemon juice for the purposes of medicine, the uncertainty of obtaining it from the fresh fruit,

and the difficulty of keeping it unchanged, have rendered the adoption of the present form expedient, if not absolutely necessary; and there are also some points of practice, as in the exhibition of effervescing draughts, where the diminished bulk of the acid in the form of crystals and its slower action as it dissolves from a solid state, give it considerable advantage. This process owes its origin to Scheele, and the acid has thus been for some years prepared upon a large scale and in a very pure state by Mr. Coxwell of Fleet-street. It depends upon the formation of an insoluble citrate of lime, which is afterwards decomposed by the stronger affinity of sulphuric acid; and the detached citric acid remains dissolved in the liquor, while the newly-formed insoluble sulphate of lime precipitates. The liquor which contains the citric acid is evaporated until the crystals form as it cools; but from the action of the sulphuric acid upon some adherent mucilaginous matter, the first crop of crystals will be small, of a dark brown colour, and impure; their colouring matter can only be separated by a repetition of the solution and crystallization twice, and, if the crystals be not then colourless and well formed, even a third time. The use of rather more sulphuric acid than is requisite to the decomposition of the citrate is intended for the complete destruction of the mucilage, for without this be effected the acid will not crystallize. This difficulty of crystallization has been urged against the preparation altogether, and a concentrated liquor has by some been suggested as more convenient; probably much of this objection will be removed by practice, for that an elegant and pure article may be prepared upon a large scale, the great supply which Mr. Coxwell is enabled to make sufficiently proves. Of the crystallized acid, one ounce dissolved in one pint of water is equal in strength to one pint of common lemon juice. Equal parts of the crystals and subcarbonate of potass are sufficient for the mutual satur-

tion of each. Of course, the solution in water has only the acidity of lemon juice, not that flavour which depends upon the admixture of its essential oil, and which for some purposes may be a useful addition. The crystals are rhomboidal prisms, whose sides incline to each other at angles of 120° and 60° , terminating at each end by four trapezoidal faces which include the solid angles. They are not altered by exposure to air. Water at 212° dissolves twice its weight, 75 parts of cold water dissolve 100 parts.

It would be advantageous if the citrate of lime could be made and imported as well as the fruit itself; for the greater perfection of the fruit in warmer climates, the quantity of acid they yield, and the small comparative space which the salt thus prepared would occupy, would all tend to diminish its present price very considerably. It may be and has been attempted to substitute for it the cheaper tartarous acid, but this may be detected if to a solution of the latter a solution of tartrate of potash be added, for an insoluble supertartrate of potash will then be formed and precipitate in granular crystals. This preparation properly made, owes none of its acidity to adherent sulphuric acid; if it does, the precipitate yielded by a small addition of solution of acetate of lead, will, as sulphate of lead, be insoluble in acetic acid, while citrate of lead will be entirely soluble in the same menstruum.

It may farther be observed, that although the process here given will commonly answer, yet, that as lemon juice sometimes varies in the proportion of acid it contains, it may occasionally require some modification of the quantity of sulphuric acid to be added. Proust states (*Journ. Phys.* 52.) that $7\frac{1}{2}$ parts of citrate of lime require 20 parts of sulphuric acid of a sp. gr. 1,15 for this purpose.

ACIDUM MURIATICUM.

MURIATIC ACID.

Acidum Muriaticum, P. L. 1787. Spiritus Salis marini
Glauberi, P. L. 1745. Spiritus Salis, P. L. 1720.

Take of dried Muriate of Soda, two pounds.

Sulphuric Acid, *by weight*, a pound
and half.

Distilled Water, a pint and half.

Mix together the Acid and half a pint of the Water in a glass retort; when they are cold, add the Muriate of Soda; pour the remainder of the Water into a receiver, and, having luted on the retort, distil the muriatic acid into it by the heat of a sand bath gradually raised to redness.

The specific gravity of muriatic acid is to that of water as 1,170 to 1,000, and a fluid-ounce diluted with water ought to dissolve of a lump of lime-stone immersed therein, half an ounce.

This process differs from the former in some practical points. The proportion of sulphuric acid requisite for the complete decomposition of the salt is as 3 to 4, and as the last portions of muriatic acid adhere more strongly, so do they require for their detachment that the temperature should be considerably increased. If sulphuric acid, undiluted, be added to muriate of soda, there is an immediate and

unmanageable extrication of muriatic acid gas, and to prevent this, a dilution of the sulphuric acid with one third of water, allowing such mixture to remain till its increased temperature be sunk to the common standard, is previously directed. If the whole charge of acid, water, and salt be introduced into the retort, the first subsequent application of heat detaches muriatic acid gas without a sufficient quantity of water to condense it, and a portion in this way passes to waste. By introducing some of the water into the receiver this gas is condensed, and the product is in the same proportion stronger. For the condensation of the whole muriatic acid gas a certain quantity of water is necessary, and, in addition to that which is here directed to be used, the quantity also contained in the crystals of the salt is to be taken into the account; for these crystals are only to be dried, not decrepitated. The purest muriate of soda will be found to be that which is called in trade by the name of *bay salt*. A tubulated receiver with an attached bottle containing the water, or any modification of Woulfe's apparatus, may be used at the pleasure or convenience of the operator, but such is not directed in the Pharmacopœia, because a common retort and receiver are sufficient, if care be taken not to lute them closely until all the common air be first expelled. By the previous dilution of the sulphuric acid the charge will be kept in a quiescent state until the application of heat be made, and thus time will be given to the operator for the adaptation of the receiver. The addition of the salt to the acid is also of importance, because it prevents the chance of any subsequent accident to the retort. The charge should not occupy more than half the body of the retort, and as it is of importance to preserve the vessel, it may be proper to add, that this may perhaps best be done when its contents have cooled to about 212° , by pouring in sufficient water at the same temperature to fill it. The residue is sulphate of soda, with a super-

abundance of sulphuric acid, and is farther to be prepared according to the directions given for that salt. The specific gravity may be thought to be placed too low, but it is the result of several trials, and cannot be kept higher under the usual circumstances of temperature. It is colourless, or more commonly has a pale yellow tinge. It has been supposed by some, that if the salt was dried the acid would uniformly be colourless; this however is not the case, as the colour invariably arises from iron. If it contain any sulphuric acid it may be discovered by muriate of barytes, and purified therefrom, if such purification be thought necessary, by a second distillation from a small quantity of muriate of soda.

ACIDUM NITRICUM.

NITRIC ACID.

Acidum nitrosum, P. L. 1787. Spiritus Nitri Glauberi. Aqua fortis, P. L. 1745. Aqua fortis simplex & duplex, P. L. 1720.

Take of dried Nitrate of Potass,
Sulphuric Acid, each *by weight*
two pounds.

Mix them in a glass retort, then distil the nitric acid in a sand bath, until a red vapour arises: lastly, having added to the acid first distilled an ounce more of dry nitrate of potass, distil the nitric acid again in a similar manner.

The specific gravity of nitric acid is to that of water, as 1,500 to 1,000. A fluid-

ounce diluted with water ought to dissolve of a lump of lime stone immersed therein seven drachms.

The proportion of sulphuric acid here given is much larger than what has been usually employed, though authors have heretofore varied much in the proportions they have directed, and Frederic Hoffman used equal parts of the salt and acid. The increase has been made chiefly with a view to obtain the nitric acid as free as possible from nitrous gas; and when this arises, which is discoverable by the red colour it imparts to the acid, the process is to be stopped. The quantity of acid thus obtained is greater in its value than where half the weight only of sulphuric acid is used; its colour is also much paler, and it is therefore better nitric acid, but it may perhaps be considered as less pure, because it is more likely to contain sulphuric acid; and on this account a second distillation from a fresh portion of nitre is directed. The nitric acid is commonly prepared by heating the coloured acid until the red fumes cease to arise and it becomes colourless; but in such a process not only nitrous gas but a large proportion of the acid itself passes to waste. If any sulphuric acid be present, nitrate of silver will discover it, and if added in sufficient quantity, will also remove it; but after the second distillation such an impurity is not to be expected. A tubulated receiver and attached vessel, kept cold by immersion in water or ice, or Woulfe's apparatus, may be used.

Nitric acid, if pure, is transparent and almost colourless, but it is more commonly orange-coloured, from the presence of nitrous gas. In the former state of these it emits white fumes, in the latter orange-coloured ones: it tinges the cuticle of a permanent yellow colour, and if sufficiently long applied

corrodes the skin itself as a caustic. The specific gravity is stated to be 1,500, which is lower than some authors have given it. The Edinburgh Pharmacopœia makes it 1,550, and Mr. Kirwan at 60°, 1,5543, and at this he considers 100 pts. to contain 73,54 of real acid free from water.

The reason for the adoption of these proportions for nitric acid is expressed in the following report made to the College.

Dried Nitre.	Sulphuric Acid.	Colour of Acid obtained.	Sp. Gr.	Weight of Product.	Marble dissolved.	Relative value.
6	3	Red	1,53	3	$\frac{70}{100}$	21
6	6	White	1,50	4	$\frac{73}{100}$	29
Present Process. } 60	29	Red	1,456	30	+ $\frac{62}{100}$	19+

When the proportions were 6 nitre and 3 sulphuric acid there remained no redundant acid.

ACIDUM NITRICUM DILUTUM.

DILUTED NITRIC ACID.

Acidum nitrosum dilutum, P. L. 1787.

Take of Nitric Acid, a fluidounce.

Distilled Water, nine fluidounces.

Mix.

One ounce of Nitric acid, by measure, is equal to about two ounces by weight, and one ounce of this diluted acid will saturate nearly one hundred grains of white marble.—The former Pharmacopœia directed under this same title an admixture of equal weights of nitric acid and water, which was, in point of strength as an acid, compared with the present nearly as 16 to 10.

ACIDUM SULPHURICUM DILUTUM.

DILUTED SULPHURIC ACID.

Acidum vitriolicum dilutum, P. L. 1787. *Spiritus vitrioli tenuis*, P. L. 1745.

Take of Sulphuric Acid, a fluidounce and a half.

Distilled Water, fourteen fluid-ounces and an half.

Add the Acid to the Water gradually, and mix.

This mixture will be more conveniently made, and its dose more easily apportioned than the former one.

The diluted acids are intended for the purpose of internal administration, and more convenient and certain division of the dose. One ounce of sulphuric acid, by measure, is equal to 11 dr. 1 scr. by weight. One fluidounce of this diluted acid will saturate about 107 grs. of dried subcarbonate of soda; and it is in strength to the admixture of one ounce acid, *by weight*, and eight water used in the former Pharmacopœia as about 139 to 100. Each fluidounce contains 45 minims of acid. Sulphuric acid diluted with one-third of its weight of water ceases to give out heat on the farther addition of water.

ALKALIA, et eorum SALES.

ALKALIES AND THEIR SALTS.

AMMONIÆ CARBONAS.

CARBONATE OF AMMONIA.

Ammonia præparata, *Sal cornu cervi*, P. L. 1787. Sal volatilis salis ammoniaci, P. L. 1745. Sal volatilis, P. L. 1720.

TAKE of Muriate of Ammonia, a pound.

Prepared Chalk dried, two pounds.

Reduce them separately to powder; then mix them together, and sublime in a heat gradually raised till the retort becomes red.

In this process a double decomposition takes place, and two new compounds, carbonate of ammonia and muriate of lime, are formed. To effect this, a high temperature, as here expressed, becomes requisite, and the employment also of a suitable additional apparatus kept at a low one for the collection and condensation of the sublimed salt; for which latter purpose a wide mouthed glass retort and receiver will answer, care being taken that it is never completely closed. Davy states the relative proportions of constituent parts of the compounds of carbonic acid and ammonia to vary according to the temperature employed; in low ones there is

more acid and water, in high ones more alkali. Bergman gives the proportions as carbonic acid 45, ammonia 43, water 12; and prepared according to the present directions, it is, in fact, a subcarbonate of ammonia; when sublimed, it forms a cake of striated crystalline appearance, smelling strongly of ammonia; when heated it melts from the quantity of water contained, becomes dry as this evaporates, and at last sublimes entirely away unaltered. Two parts of cold water dissolve one of this salt, boiling water dissolves more than its weight.

In the former Pharmacopœia, the same salt was also prepared by distillation from bones, purified by repeated sublimation from chalk, and kept under the name of *Sal Cornu Cervi*.

LIQUOR AMMONIÆ ACETATIS.

SOLUTION OF ACETATE OF AMMONIA.

Aqua Ammoniæ acetatæ, P. L. 1787.

Take of Carbonate of Ammonia, two
ounces.

Acetic Acid, four pints.

Add the acid to the salt until bubbles of gas no longer arise, and mix.

If the acid rather predominate, the solution is more grateful to the taste; and provided that acid be correctly prepared, the proportions here given will be found sufficient: where the strength of the acid cannot be depended upon, it will be right to be regulated rather by the cessation of effervescence than by quantity. The salt cannot be obtained in a solid

form without difficulty, but it may be crystallized by a cautious sublimation, at a temperature about 250° ; no advantage however would be derived from such a process for the purposes of medicine.

LIQUOR AMMONIÆ CARBONATIS.

SOLUTION OF CARBONATE OF AMMONIA.

Aqua Ammoniac, P. L. 1787. Spiritus salis ammoniaci, P. L. 1745. P. L. 1720.

Take of Carbonate of Ammonia, eight ounces.

Distilled Water, a pint.

Dissolve the carbonate of ammonia in the water, and filter the solution through paper.

In the former Pharmacopœia this solution was prepared by a distillation of a mixture of muriate of ammonia, subcarbonate of potass, and water; but the result is so nearly the same when the present formula is used, that there seemed to be no good reason why a more complex process should be retained.

LIQUOR AMMONIÆ.

SOLUTION OF AMMONIA.

Aqua ammoniæ puræ, P. L. 1787.

Take of Muriate of Ammonia,
Lime newly prepared, of each two
pounds.

Water, a pint and half.

Reduce the muriate of ammonia and the lime into powder separately, then mix them, and introduce them into a large glass retort, into which a pint of the water has been previously poured. Having placed the retort in a sand bath, lute on a tubulated receiver, through which the ammonia may pass into a third vessel, containing half a pint of the water, and kept cold. Then at first apply a gentle heat, and increase it by degrees until the retort becomes red.

It must be carefully remembered, that *Liquor ammoniæ* of the present Pharmacopœia corresponds with *Aqua ammoniæ puræ*, and not with *Aqua ammoniæ* of the former. Great care and attention are necessary in every part of this process; the two salts are to be powdered separately before they are mixed, for if they be triturated together, ammonia will be extricated, which should of course be prevented until the means for its collection are adopted. The salts are to be shaken well together, rather than rubbed, and added to the water in the

retort; the cold then produced by the solution of the salt will counteract the heat produced by the slaking of the lime, and a charge so made will be manageable until the receiver is fitted on, and the heat of the sand bath applied; this heat need not be greater than 300° , and should be very cautiously and slowly raised, to prevent the rapid ebullition and expansion during the extrication of gas from a charge of such density: and for the same reason a large retort is directed. The ammonia rises immediately in the form of gas, and a portion of the water is therefore placed in a situation to condense it; in the subsequent stages water will arise from the charge in the retort. The third vessel directed in the formula, may be either a common bottle fitting moderately, for no great pressure is necessary, to a straight tube issuing from the bottom of the receiver, and dipping below the surface of the water it contains, or Woulfe's apparatus may be used; but with moderate attention the simpler means will answer better perhaps than the more complex. This process is, I believe, often performed upon a large scale in an iron retort, which does no injury to the preparation, whilst a glass one will of course be broken. In either case the receiving bottle must be kept cold by wet cloths or ice, for the lower the temperature of the water the greater quantity of ammoniacal gas will it condense, and the condensation is accompanied by an increase of its heat. If two bottles, each containing half the quantity of water directed, be used, they will be most manageable, as they may be changed alternately, so as to prevent either from being overheated, and the contents of both may be mixed together at last. This preparation is colourless and transparent, with a strong peculiar, characteristic smell; it parts with its ammonia in the form of gas if heated to 130° , and requires to be kept with a cautious exclusion of atmospheric air, to the carbonic acid of which it readily unites: on this latter account the propriety of keeping it in

small bottles instead of a large one has been suggested. Water saturated with ammonial gas has a less specific gravity than common water; and the following useful Table, indicative of the quantity of ammonia contained in solutions according to their specific gravity, is taken from Mr. Davy.

Sp. Gr.	Ammonia.	Water.	Sp. Gr.	Ammonia.	Water.
0,9054	25,37	74,63	0,9545	11,56	88,44
0,9166	22,07	77,93	0,9573	10,82	89,18
0,9255	19,54	80,46	0,9597	10,17	89,83
0,9326	17,52	82,48	0,9619	9,60	90,40
0,9385	15,88	84,12	0,9684	9,50	90,50
0,9435	14,53	85,47	0,9639	9,09	90,91
0,9476	13,46	86,54	0,9713	7,17	92,83
0,9513	12,40	87,60			

POTASSÆ ACETAS.

ACETATE OF POTASS.

Kali acetatum, P. L. 1787. Sal diureticus, P. L. 1745.

Take of Subcarbonate of Potass, a pound
and half.

Acetic Acid, a gallon.

Mix them together in a large glass vessel, and having evaporated the solution to half over the fire, add gradually as much more acetic acid as may be necessary for perfect saturation. Let the solution be further reduced to one-half by evaporation, and strain it; then by means of a water bath evaporate it, so that on being removed from the fire it shall crystallize,

In the former Pharmacopœia no directions were given for the crystallization of this salt, but merely that its solution should be evaporated to dryness. The crystallized salt is however a more elegant and uniform preparation, and as it is made by some chemists upon a large scale, it is usually found in the shops, and it requires only to be fused to assume this appearance; the great point of attention necessary is, that the heat be never sufficient to decompose or char the vegetable acid. Its crystallization depends upon the liquefaction of the dry salt by heat, and the assumption of a regular form as it cools, rather than on separation from its solution in water. From its foliated appearance it has been called *Terra foliata Tartari*; it has also been named *Sal Sennerti*, in honour of Sennert, whom Boerhaave supposes to have been its inventor. Lowitz has advised generally, that colouring matters should be separated from saline substances, by an admixture of them with freshly burnt and powdered charcoal, and, as the practice answers, it may be occasionally useful to employ it in this preparation. Acetate of potass is white, shining, and united into a mass of large plates, which deliquesce in the air. Water at 60° dissolves an equal weight. It is soluble in four times its weight of alcohol. In the present preparation the alkali rather predominates, but not in an unpleasant degree. If the salt be coloured, it is said that it may be rendered colourless by fusion, solution in water, filtration, and evaporation; and that in this process carbone is separated and collected on the filter.

POTASSÆ SULPHAS.

SULPHATE OF POTASS.

Kali vitriolatum, P. L. 1787. *Tartarum vitriolatum*, P. L. 1745. *Tartarum vitriolatum*, P. L. 1720.

Take of the Salt which remains after the distillation of Nitric Acid, two pounds.

Boiling Water, two gallons.

Mix them that the salt may be dissolved; next add as much subcarbonate of potash as may be requisite for the saturation of the acid. Then boil the solution until a pellicle appears upon the surface, and, after straining it, set it by that crystals may form. Having poured away the water, dry the crystals upon bibulous paper.

This salt was prepared formerly by exposure of the residue after the distillation of nitric acid, to a violent and continued heat so as to drive off the superabundant sulphuric acid; than which the present mode is more manageable and convenient. The concretion of the salt in the common process often broke the retort, and was at any rate got out of it with difficulty on account of its insolubility; this super salt is more soluble, and if when it is reduced to about the temperature of 212° , after the distillation of the acid, boiling water be poured on, it may be easily dissolved, and the retort saved.

Its crystals are short six-sided prisms, terminated by six-sided pyramids. Its taste is bitter; one part is soluble in 16 of water at 60°, and in 5 at 212°. Thompson gives as its constituent parts acid 31,0, potass 67,6, water 1,4.

POTASSÆ SUPERSULPHAS.

SUPERSULPHATE OF POTASS.

Take of the Salt which remains after the distillation of Nitric Acid, two pounds.

Boiling Water, four pounds.

Mix them together so that the salt may be dissolved, and strain the solution; then boil it until a pellicle appears upon the surface, and set it by that crystals may form. Having poured away the water, dry these crystals upon bibulous paper.

This salt is the immediate residue after the distillation of nitric acid, first dissolved and then crystallized; in its coarse state it has usually been kept by druggists for the use of silversmiths, and was formerly also used in pharmacy under the title of *Sal Enixum*. On crystallizing, it chiefly fixes itself to the side of the vessel, from which bed slender needles sometimes shoot. It has a strong acid taste, and reddens vegetable blues: one part is soluble in two of water at 60°, and in less than an equal weight at 212°, and it is not soluble in alkohol; it affords a useful means of producing the effects of sulphuric acid combined with those of an opening salt, and may be ex-

hibited at once in a solid form, an indication which is often desirable. It consists of 37 parts of sulphate of potass, with 33 excess of acid.

POTASSÆ TARTRAS.

TARTRATE OF POTASS.

Kali tartarizatum, P. L. 1787. Tartarum solubile, P. L. 1745.

Take of Subcarbonate of Potass, a pound.

Supertartrate of Potass, three pounds.

Boiling Water, a gallon.

Dissolve the subcarbonate of potass in the water; next add the supertartrate of potass, previously reduced to powder, gradually, until bubbles of gas cease to arise. Strain the solution through paper, then boil it until a pellicle appears upon the surface, and set it by that crystals may form. Having poured away the water, dry the crystals upon bibulous paper.

Supertartrate of potass contains $\frac{44}{100}$ of superabundant acid, which is here neutralized by the addition of subcarbonate of potass, and a neutral tartrate of potass is formed, the cessation of effervescence being the test of saturation. Its crystals are four equal-sided prisms, terminated by two-

sided pyramids. Its taste is somewhat bitter. One part is soluble in four of water at 60°, and hence, compared with the sparingly soluble super-tartrate, its name of *soluble tartar* has been drawn. Potass and tartaric acid have a stronger disposition to unite in the proportions of the super-salt than of the neutral one; hence the addition of more tartaric acid forms a granular precipitate of super-salt, and so do other acids also, with any of which therefore it cannot be properly directed in prescription.

POTASSÆ SUBCARBONAS.

SUBCARBONATE OF POTASS.

Kali preparatum, P. L. 1787. Sal absinthii, Sal tartari,
P. L. 1745.

Take of impure Potass powdered, three pounds.

Boiling Water, three pints and a half.

Dissolve the potass in water, and filter; then pour the solution into a clean iron pot and evaporate the water over a moderate fire, until the liquor thickens; then let the fire be withdrawn, and stir the liquor constantly with an iron rod until the salt concretes into granular crystals.

A purer subcarbonate of potass may be prepared in the same manner from Tartar, which must first be burnt until it becomes ash-coloured.

Previous to the Pharmacopœia of 1745, the alkaline salt obtained from the ashes of different vegetables was supposed to differ, and a great number of preparations of the same, named after the particular plant from which they were obtained, were directed to be kept. Ordinary potass is prepared by the incineration of various vegetables, and is denominated in commerce by the place from which it is imported, as Russian, American, &c. The only difference which respects the plant, is in the proportion of alkali it yields; this extends also to the several sorts of potass which are found in the market: and all of them contain heterogeneous matters in abundance, but in different quantities; as sulphate and muriate of potass, insoluble matter, &c. The proportion of pure potass obtained from different sorts varies according to Vauquelin from $\frac{74}{100}$ to $\frac{38}{100}$. The object of the present process, is to obtain the subcarbonate of potass in a sufficient though it will not be complete state of purity. The neutral salts dissolve in the water as well as the subcarbonate; and in the former Pharmacopœia enough water was used for the solution of both, and they were afterwards separated by crystallization, allowing the solution to cool for that purpose as soon as a pellicle appeared. It has been thought that this part of the process which is connected with some labour and expence might be omitted, and that the same effect will be produced by using, in the first instance, only enough water for the solution of the more soluble subcarbonate. When the solution has evaporated to about the consistence of cream, the proportion of water which remains is necessary to the composition of the crystals; the further evaporation is therefore to be stopped by withdrawing the fire, and the mixture is to be stirred till it concretes into crystalline grains. It is matter of absolute necessity that the iron pot should be clean and free from rust. This salt deliquesces, and therefore requires to be kept in stopped bottles.

Tartar, the other source from which subcarbonate of potass is obtained, consists of supertartrate of potass, mixed with fewer heterogeneous matters than common potass. This acid, like the other vegetable acids, may be wholly decomposed by a strong heat, and the subcarbonate remains coloured by carbon. Treated by the same process as the former, this yields a purer but more expensive salt, and is directed to be kept as being preferable for many processes, on account of its comparative purity.

POTASSÆ CARBONAS.

CARBONATE OF POTASS.

Take of Subcarbonate of Potass prepared
from Tartar, a pound.

Carbonate of Ammonia, three
ounces.

Distilled Water, a pint.

Having previously dissolved the subcarbonate of potass in the water, add the carbonate of ammonia; then, by means of a sand bath, apply a heat of 180° for three hours, or until the ammonia shall be driven off; lastly, set the solution by to crystallize. The remaining solution may be evaporated in the same manner, that crystals may again form when it is set by.

This process was invented by Berthollet. The potass takes the carbonic acid from the ammonia, which is volatile

and passes off in the temperature employed; it is however very difficult to detach the ammonia entirely. Potass is thus saturated with carbonic acid, of which it contains double the quantity that the sub-salt does; it gives out this proportion on the addition of muriatic acid, and may be converted again into the sub-salt by heating it for a short time to redness (Phil. Trans. Vol. xcvi.). It is less nauseous to the taste than subcarbonate; it crystallizes, and does not deliquesce. Water at the common temperature dissolves one-fourth its weight, and at 212° five-sixths, but this latter heat detaches some of the carbonic acid.

LIQUOR POTASSÆ SUB-CARBONATIS.

SOLUTION OF SUBCARBONATE OF POTASS.

Aqua kali præparati, P. L. 1787. Lixivium tartari, P. L. 1745.

Oleum tartari per deliquium, P. L. 1720.

Take of Subcarbonate of Potass, a pound.

Distilled Water, twelve fluid-ounces.

Dissolve the subcarbonate of potass in the water, and then strain the solution through paper.

This is a more definite preparation than the *aqua kali præparati* of the Pharmacopœia of 1787, and it also differs from it: for, during the exposure necessary for deliquescence in the latter, carbonic acid as well as moisture

was attracted from the air. The solution here directed will, in the ordinary state of the subcarbonate, amount to nearly eighteen ounces in bulk.

LIQUOR POTASSÆ.

SOLUTION OF POTASS.

Aqua kali puri, P. L. 1787. Lixivium saponarium, P. L. 1745.

Take of Subcarbonate of Potass,

Lime newly prepared, of each a pound.

Boiling distilled Water, a gallon.

Dissolve the subcarbonate of potass in two pints of the water. Add the remaining water to the lime. Mix the liquors while they are hot, stir them together, then set the mixture by in a covered vessel, and after it has cooled, strain the solution through a cotton bag.

If any diluted acid dropped into the solution occasion the extrication of bubbles of gas, it will be necessary to add more lime and to strain it again.

A pint of this solution ought to weigh sixteen ounces.

When carbonate of potass and lime are thus mixed, the

lime unites to the carbonic acid and forms an insoluble carbonate of lime, and the potass remains in solution. The proportion of lime here directed, is, if it be good, sufficient for the perfect decomposition of the salt, and there is an advantage in not having a greater residuary mass than is necessary. The precipitate of carbonate of lime retains, by capillary attraction, nearly $\frac{1}{3}$ of the solution of potass, but this may be dislodged by cautiously pouring upon the surface an equal quantity of water, which being lighter than the solution itself, will not mix with it until the greater part of the latter has passed the filter. At every period of the process, the presence of external air should be avoided, as affording a supply of carbonic acid; and calico, as here directed, both filters more quickly than any other means, and is not acted upon by the potass. The purity of the solution should always be tried by the addition of lime water, which, if there be any combined carbonic acid, will denote it by a precipitate. It is also possible that a superabundance of lime may have been used, and that lime and potass may both be dissolved; this is discoverable and removable in the same way, by dropping in the solution of subcarbonate of potass. This solution is more dense than water, and has an oil-like appearance when shaken.

POTASSA FUSA.

FUSED POTASS.

Kali purum, P. L. 1787. Lapis infernalis sive septicus, P. L. 1720.

Take of Solution of Potass, a gallon.

Evaporate the water in a clean iron pot over the fire, until, when the ebullition has

ceased, the potass remains in a state of fusion; pour it upon a clean iron plate, into pieces of convenient form.

This preparation is sufficiently pure for its use as a caustery, much more indeed so than the former kali purum; it cannot be obtained in a state pure enough for accurate experiments except by a solution of it in alkohol, separation of the undissolved salts, and a second evaporation, according to Berthollet's process (*Journ. du Phy. V. xxviii.*). The cessation of ebullition is sufficient proof that the water is evaporated, and it may, when poured upon the iron plate, be readily divided, before it sets, into small pieces of convenient size, or run into moulds of the shape it may be wished to give it. If heated it fuses, and again concretes as it cools; it destroys animal matter rapidly, and is applied as a caustic. It deliquesces on exposure, and one part of water will dissolve two of it.

POTASSA CUM CALCE.

POTASS WITH LIME.

Calx cum kali puro, P. L. 1787. Causticum commune fortius, P. L. 1745.

Take of Solution of Potass, three pints.

Fresh Lime, a pound.

Boil the solution of potass down to a pint, then add the lime, previously slaked by the addition of water, and mix them together intimately.

This mechanical admixture forms the caustic most commonly employed, which is more convenient and manageable in its operation than the potass alone. The lime gives consistence to the solution of potass, and this consistence, as it prevents the potass from spreading, regulates the boundaries of its action on the part to which it is applied.

SODA TARTARIZATA.

TARTARISED SODA.

Natron tartarizatum, P. L. 1787.

Take of Subcarbonate of Soda, twenty ounces.

Supertartrate of Potass powdered, two pounds.

Boiling Water, ten pints.

Dissolve the subcarbonate of soda in the water, and add gradually the supertartrate of potass; filter the solution through paper, and evaporate it until a pellicle forms upon the surface; then set it by that crystals may form. Having poured away the water, dry these crystals upon bibulous paper.

This salt consists of tartaric acid, soda and potass, the soda combining with the superabundant acid of the supersalt: it is therefore a triple salt, and it has been judged more convenient here and in some other instances to express this difference by the adjective *tartarizata*, than to introduce

the three words necessary to its description. Its crystals are prisms of eight or ten unequal sides, having their ends truncated at right angles. It is soluble like tartrate of potass, its taste is bitter, and it effloresces on exposure to air. Vauquelin states, that it consists of tartrate of potass 54, tartrate of soda 46. It has been called salt of Seignette from its inventor, and also Sal Rupellensis, or Rochelle salt.

No distinction was made, P. L. 1745, between the salts prepared by adding soda or potass to the super-salt, and both were kept indiscriminately under the name of soluble tartar. In this, as in the sulphate of potass and many other salts, a slight excess of alkali disposes the crystals to form more readily, and renders them more perfect in their form.

SODÆ SULPHAS.

SULPHATE OF SODA:

Natron vitriolatum, P. L. 1787. Sal catharticus Glauberi,
P. L. 1745.

Take of the Salt which remains after the
distillation of muriatic acid,
two pounds.

Boiling distilled Water, two pounds
and a half.

Dissolve the salt in the water, then add gradually as much subcarbonate of soda as may be required to saturate the acid; boil the solution away until a pellicle forms upon the surface, and, after having strained it, set it by that crystals may form. Having poured away

the water, dry these crystals upon bibulous paper.

This preparation depends upon the same principles as those upon which the sulphate of potass is formed; but soda differs from potass in its relation to sulphuric acid, and does not strictly unite with it into a super-salt; as, however, more than half their weight of water enter into the composition of the crystals of sulphate of soda, if that water be acid it will influence the character of the salt, and hence its saturation with alkali is as necessary here as in the former instance. Its crystals are six-sided prisms terminated by two-sided pyramids, but they are most commonly irregular and channelled on their sides. One part is soluble in somewhat less than three of water at 60°, and in less than its own bulk at 212°. Kirwan gives its proportions as acid 23,52, soda 18,48, water 58.00. If heated, it melts from the agency of its water of crystallization, and when this is evaporated, it may be fused by an increase of the heat. After this loss of water, Kirwan states it to consist of acid 56, soda 44. In France it has been prepared by disturbing its more regular crystallization by stirring; when it takes a silky spicular form, and has been called improperly Sal d'Epsom. It will be observed, that besides this process for its formation, *sulphate of soda* stands as an article in the catalogue of *Materia Medica*. The quantity obtained, by the pharmaceutic process for supplying muriatic acid, is not sufficient for the consumption; and therefore it has been judged right to admit it also from the manufacturers, who prepare large quantities, especially in the works for muriate of ammonia, where they obtain a very impure carbonate of ammonia in their first distillation of bones, and separate these impurities by sulphuric acid; they afterwards

employ a double decomposition, mixing the sulphate of ammonia with muriate of soda; from this they sublime the muriate of ammonia when the sulphate of soda remains, which, if it be crystallized, is sufficiently pure and very cheap.

SODÆ SUBCARBONAS.

SUBCARBONATE OF SODA.

Natron præparatum, P. L. 1787.

Take of impure Soda powdered, a pound.

Boiling distilled Water, a gallon.

Boil the soda in the water for half an hour, and strain the solution; let it evaporate to two pints, and be set by, that crystals may form. Throw away the remaining solution.

All barilla or kelp contains much heterogeneous matter, and the Spanish, which is the purest, is to be preferred. It is prepared by the incineration of marine plants of various sorts, and is also found native in some parts of Africa. Water dissolves the subcarbonates and other salts, of which, contrary to what happens with the subcarbonate of potass, the subcarbonate of soda crystallizes first after due evaporation; the first crop yielded will, therefore, be sufficiently pure, and of their regular form: in the second crop, the crystals will contain a larger proportion of the other most predominant salt, the sulphate of soda, and approximate to its form of crystal; only the first, therefore, is on this account directed to be kept for use, and the residuary or mother liquors to be thrown away. Its crystals are formed of two

four-sided pyramids applied base to base, with the tops truncated, forming a ten-sided crystal, but perfect crystals are not to be expected in preparations of any salt upon a large scale, and the disposition which its angles show to the assumption of this form is sufficient. One part is soluble in two of cold water, and in one of water at 212° . It effloresces on exposure to a dry air. The crystals consist of carbonic acid 14,42, soda 21,58, water 64,00, according to Kirwan.

SODÆ SUBCARBONAS EXSICCATA.

DRIED SUBCARBONATE OF SODA.

Take of Subcarbonate of Soda, a pound.

Apply a gentle heat to the soda in a clean iron vessel until it becomes perfectly dry, and at the same time constantly stir it with an iron rod. Lastly, reduce it into powder.

The crystals of subcarbonate of soda, if exposed to air, lose a part of their water, and effloresce or fall into powder. Hence, the proportion of soda contained in the salt kept in the shops becomes indefinite. In this salt completely effloresced, the proportion of water lost may be nearly one-half of the whole. By a definite exposure to heat the whole water may be evaporated, and the salt thus prepared is more useful and uniform in many of its applications. Care must be taken that the heat be not urged too far, for a red heat deprives it also of its carbonic acid. Dried subcarbonate of soda contains, according to Kirwan, carbonic acid 40,04, soda 59,86; and 100 parts of the crystals are deprived of their 64 of water,

SODÆ CARBONAS.

CARBONATE OF SODA.

Take of Subcarbonate of Soda, a pound.

Subcarbonate of Ammonia, three
ounces.

Distilled Water, a pint.

Having previously dissolved the soda in the water, add the ammonia, then by means of a sand bath apply a heat of 180° for three hours, or until the ammonia be driven off. Lastly, set the solution by to crystallize. The remaining solution may in the same manner be evaporated, and set by that crystals may again form.

This salt bears to its subcarbonate the same relation that carbonate of potass does to its subcarbonate; it is prepared in the same way, possesses the same comparative advantages and contains double the quantity of carbonic acid. Klaproth gives as its proportions, acid 39, soda 38, water 23.

TERRÆ et earum SALES.

EARTHS AND THEIR SALTS.

ALUMEN EXSICCATUM.

DRIED ALUM.

Alumen ustum, P. L. 1787.

MELT alum over the fire in an earthen vessel, and then increase the heat until it ceases to boil.

The crystals of alum contain $\frac{44}{108}$ of water, and when it is exposed to heat it melts and the water evaporates away; this is the object of the present preparation, which is intended for external use. It should be remembered in preparing it, that a violent heat will decompose the salt and drive off the greater part of the acid also.

LIQUOR ALUMINIS COMPOSITUS.

COMPOUND SOLUTION OF ALUM.

Aqua aluminis composita, P. L. 1787. Aqua aluminosa
bateana, P. L. 1745.

Take of Alum,

Sulphate of Zinc, of each half an
ounce.

Boiling Water, two pints.

Dissolve at the same time the alum and
sulphate of zinc in the water, and then strain
the solution through paper.

CALX.

LIME.

Calx, P. L. 1787, P. L. 1745. *Calx viva*, P. L. 1720.

Take of Lime-stone, a pound.

Break it into small pieces, and heat it in
a crucible in a very strong fire for an hour,
or until the carbonic acid is entirely driven
off, so that on the addition of acetic acid,
no bubbles of gas shall be extricated.

Lime may be made by the same process
from shells previously washed in boiling
water, and cleared from extraneous matters.

In the former Pharmacopœia lime was ranked among the articles of *Materia Medica*, and taken as prepared for its coarser uses in the arts: for many purposes this might be sufficient, but for others it is often important that it should be much purer, and the present directions are therefore introduced. Two varieties of the carbonate also are taken from which it may be prepared; lime-stone and shells of oysters: the latter of which contains the least foreign admixture: but even the former thus prepared will be much purer than that which is usually made from chalk. Carbonate of lime consists, according to Kirwan, of 45 carbonic acid and 55 lime. From whatever combination it be obtained, lime is always the same substance, possessing the same characters, and producing the same effects, though it may differ in the proportion of heterogeneous matters with which it is mixed; the distinctions therefore which were formerly made between its medical qualities as obtained from different sources were superfluous, and will not, in the present state of science, be likely to be renewed by the present introduction of more than one. It is necessary to the perfection of the lime that the carbonic acid should be entirely expelled, and in the preparation of ordinary lime this is very imperfectly done, for it is sufficient for all common purposes if it be burnt so as to slake on the addition of water; on the other hand, it may also be noticed that where lime-stone is employed, the heat may be pushed too far and be too long continued. The pure earths will not vitrify by heat, but many earthy admixtures readily will: now as most lime-stones contain some portion of other earths, they may, under these circumstances, vitrify, and form a coating over the surface of the lumps, which will defend them from the action of water, and thus prevent their slaking or solution: lime, therefore, may thus be over-burnt. The pieces of stone used for

burning should be as nearly as may be of equal size. If half its weight of water be poured upon lime, it swells and falls into a white powder, much heat is evolved, part of the water rises in steam, and part combines with the lime; this is called slaked lime, and in this state it readily attaches carbonic acid from the air. When perfectly dry it may be kept in bottles for any length of time unaltered; but to obviate any chance of its being impure from the above cause, it is usually directed to be employed newly prepared. Lime newly slaked, and to which more water is added, ought not to effervesce on the addition of an acid.

LIQUOR CALCIS.

SOLUTION OF LIME.

Aqua calcis, P. L. 1787. *Aqua calcis simplex*, P. L. 1745.

Aqua calcis, P. L. 1720.

Take of Lime, half a pound.

Boiling distilled water, twelve pints.

Pour the water upon the lime and stir them together; next cover the vessel immediately, and let it stand for three hours; then keep the solution upon the remaining lime in stopped glass bottles, and pour off the clear liquor when it is wanted for use.

Lime is soluble in about 450 times its weight of water, or little more than one grain in one fluidounce, forming a transparent solution; hence the proportion here directed is in

fact more than is required for the saturation of the water, but the larger quantity allows moreover for any impurity contained in the lime, and as it is a cheap article, the quantity used is scarce of any importance. The process here adopted is simple, efficacious, and convenient, and by keeping the solution standing upon the lime it will always be saturated, and the place of any crust of carbonate of lime which forms upon the surface, if exposed, will be supplied from the lime, which remains in a state ready for solution.

CRETA PRÆPARATA.

PREPARED CHALK.

Creta præparata, P. L. 1787. P. L. 1745. *Creta*, P. L. 1720.

Take of Chalk, a pound.

Add a small quantity of water to the chalk, and grind it into a fine powder; throw this powder into a large vessel full of water, then stir it, and after a short interval, pour the supernatant turbid solution into another vessel, and set it by that the powder may subside; lastly, having poured away the water, dry the powder.

This is the most certain method of obtaining the powder uniform and fine. The principle has long been adopted for the preparation of other fine and equal powders of insoluble substances, and is so in the common manufacture of Whitening; it was also employed in the early Pharmacopœiæ; it turns upon the longer suspension of the finer particles in

water, so that, after the subsidence of the coarser in the first instance, the uniform and very subtle powder which remains longer suspended, may be collected as the product of a second subsidence. In the previous mechanical division, or grinding, a small quantity of water is added to prevent the finer particles from flying off.

MAGNESIÆ CARBONAS.

CARBONATE OF MAGNESIA.

Magnesia alba, P. L. 1787.

Take of Sulphate of Magnesia,
Subcarbonate of Potass, of each
a pound.

Water, three gallons.

Dissolve the subcarbonate of potass in three pints of the water, and strain: dissolve also the sulphate of magnesia separately in five pints of the water, and strain: then add the rest of the water to the latter solution, apply heat, and when it boils, pour in the former solution, stirring them well together: next strain through a linen cloth; lastly, wash the powder repeatedly with boiling water, and dry it upon bibulous paper in a heat of 200°.

The double decomposition of the salts here employed yields carbonate of magnesia and sulphate of potass, the first

of which it is the object to collect as free as possible from the last. Hence, as the newly formed sulphate of potass requires a large proportion of water for its solution, such a proportion is directed in the first instance, and it is afterwards well washed with more. If water be impregnated with carbonic acid gas it will dissolve carbonate of magnesia, and hence the liquor is made to boil for the purpose of detaching it. If the two solutions be mixed cold, and the precipitate left for some days upon the filter without artificial drying, many large and perfect crystals of carbonate of magnesia will be formed in it. The subsequent heat by which the powder is dried should not be great enough to detach any of the carbonic acid. The present process will yield a pure and elegant preparation; its form is that of a white powder, easily friable, and, according to Fourcroy, if the base be fully saturated with carbonic acid, as in the crystals (for in its ordinary form it is a subcarbonate), 100 parts contain carbonic acid 50, magnesia 25, water 25; and if not so saturated, but in its state of sub-salt, carbonic acid 48, magnesia 40, water 12.

In commerce, the muriate of magnesia contained in the residuary liquor after the crystallization of muriate of soda from sea water is decomposed by a similar process, and yields a large proportion of the ordinary magnesia of the markets.

MAGNESIA.

MAGNESIA.

Magnesia usta, P. L. 1787.

Take of Carbonate of Magnesia, four ounces, burn it in a very strong fire for two hours, or until acetic acid being dropped in, extricates no bubbles of gas.

It may be noted that a definite quantity has been prescribed here and in many other cases for the sake of precision only, and not as influencing the quality of the product. This preparation was the *magnesia usta* of the former Pharmacopœia; but as the term *magnesia* is correctly used to express only the pure earth, so it has been thought proper to apply it decidedly in the present instance, although, in common language, the same term may be most generally applied to the carbonate, and the epithet *calcined* added to express the present preparation. The process depends upon the expulsion of the carbonic acid of the carbonate by heat, and in the form of gas, and hence the carbonate yields about half its weight, or rather $\frac{7}{12}$ ths of the pure magnesia. It may be considered as insoluble in water, for Kirwan states 7900 times its weight to be necessary for this purpose at 60°.

SULPHUREA.

PREPARATIONS OF SULPHUR.



SULPHUR LOTUM.

WASHED SULPHUR.

Flores sulphuris loti, P. L. 1787.

TAKE of sublimed Sulphur, a pound.

Pour on boiling water so that the acid, if there be any, may be entirely washed away; then dry it.



Sublimed sulphur prepared upon a large scale contains some sulphuric acid, which is evident to the taste, and these directions are intended to remove it. It is farther proper, that sulphur, when washed, should be kept in closed vessels rather than in an open drawer; for in the latter situation its superior surface manifestly becomes acid on long keeping.

SULPHUR PRÆCIPITATUM.

PRECIPITATED SULPHUR.

Sulphur præcipitatum, P. L. 1787. P. L. 1745. Lac sulphuris,
P. L. 1720.

Take of sublimed Sulphur, a pound.

Fresh Lime, three pounds.

Boil the sulphur and lime together in water, then strain the solution through paper, and drop in as much muriatic acid as may be necessary to precipitate the sulphur; lastly, wash this by repeated affusions of water until it is tasteless.

In the Pharmacopœia of 1745 a sulphuret of lime was formed, or rather an hydroguretted sulphuret, as it was prepared in water like the process now adopted, and the sulphur precipitated from the solution by sulphuric acid; in that of 1787 sulphuret of potass was decomposed by the same acid. The insoluble sulphate of lime could scarcely be washed out from the former, and the sulphate of potass not without difficulty from the latter; both therefore contained admixtures of these salts, to which they owed a good deal of their white appearance. The present precipitate, from the ready solubility of the muriate of lime, will be only sulphur, but it will be still much whiter than sublimed sulphur, either from its more minute division, or some other cause not well ascertained. It will, however, differ in no other respect from sublimed sulphur, and has probably for this reason been omitted in both the Edinburgh and Dublin Pharmaco-

pœiæ; but as this circumstance of colour gives it an advantage in the composition of ointments, so as a refinement, rather than necessary agent in practice, it is here retained.

OLEUM SULPHURATUM.

SULPHURATED OIL.

Oleum sulphuratum, P. L. 1787. Balsamum sulphuris simplex, P. L. 1745.

Take of Washed Sulphur, four ounces.

Olive Oil, a pint.

Having heated the oil in a very large iron pot, add the sulphur gradually, and stir the mixture after each addition until they have united.

Great care must be taken that the vessel be sufficiently large to contain thrice the bulk of the ingredients, and that the heat be not raised higher than just to make the oil bubble, for without such care the mixture will swell, boil over, and inflame. The Edinburgh Pharmacopœia directs only half this proportion of sulphur.

POTASSÆ SULPHURETUM.

SULPHURET OF POTASS.

Kali sulphuratum, P. L. 1787.

Take of Washed Sulphur, an ounce.

Subcarbonate of Potass. five ounces.

Rub them together, and heat the mixture in a covered crucible over a gentle fire until they have united.

The object of this preparation is to render the sulphur soluble in water, which these proportions so managed will effect; the former process was deficient in the directions for fusing the mixture, which is necessary. A perfect chemical sulphuret of potass would require the use of potass, (not its subcarbonate) but this is not necessary for the purposes of pharmacy. It may also be proper to state, that this preparation is unfit for the separation of sulphuretted hydrogen gas, on account of the carbonic acid it contains, and that this may be best obtained from sulphuret of iron and sulphuric acid much diluted. From the colour of the compound resulting from the union of potass and sulphur it has been called *Hepar sulphuris* (*Liver of Sulphur*).

METALLA et eorum SALES.

METALS AND THEIR SALTS.

PRÆPARATA EX ANTIMONIO.

PREPARATIONS FROM ANTIMONY.

OXYDUM ANTIMONII.

OXYD OF ANTIMONY.

Antimonium calcinatum. Antimonium vitrifactum. Crocus antimonii, P. L. 1787. *Crocus antimonii. Crocus antimonii lotus. Calx antimonii*, P. L. 1745. *Antimonium diaphoreticum. Bezoarticum minerale*, P. L. 1720.

TAKE of Sulphuret of Antimony, powdered, two ounces.

Muriatic Acid, eleven fluid ounces.

Nitric Acid, one fluid ounce.

The acids being mixed together in a glass vessel, add the antimony gradually thereto, and digest them in a boiling heat for an hour; then strain the solution, and pour it into a gallon of water in which two ounces of subcarbonate of potass have been previously dissolved; wash the precipitated powder by repeated affusions of water until all the acid is washed away; then dry it upon bibulous paper.

From the time of Basil Valentine to the present the sulphuret of antimony has been called by the name of antimony in Pharmacy, but the latter term is now confined to express the metal alone as it has been in the language of general chemistry since its modern revision. All the preparations of this metal, which are amongst the most important employed in medicine, have undergone a considerable revision, and the present oxyd by precipitation is substituted for three, which the former Pharmacopœia contained; Antimonium calcinatum, Antimonium vitrifactum, Crocus antimonii. Antimony in its combination with sulphur in the striated sulphuret is in the state of metal, not of oxyd; upon this muriatic acid alone exerts no action, and nitric acid is instantly decomposed, and converts the metal into an oxyd without uniting with it to form a soluble salt. The mixture of both oxydates the metal by the decomposition of the nitric, and brings it into a state suited for solution in the muriatic acid; that is, it produces the same effect that oxygenized muriatic acid would do, and muriat of antimony is formed. The solution if poured into water precipitates its oxyd, and this has been long kept under the name of *Pulvis Algarothi*, after the name of a physician at Verona who is said to have discovered it: Bergman considers the precipitate to be a pure oxyd; but it is doubtful whether it be entirely free from muriatic acid, and therefore the separation of this is secured, if any be present, by adding the subcarbonate of potass; though some, nevertheless, still consider it to be a submuriate. Metallic antimony, as it is used in the arts, is mixed with other metals, and therefore has been thought less fit than the sulphuret for a basis to pharmaceutical preparations. Even the sulphuret is not unfrequently adulterated with sulphuret of lead (*Potter's Lead ore*), and should therefore be taken in its crystalline striated form, when it

can have no such artificial admixture. This consists according to Proust of 75 antimony, 25 sulphur. Another advantage to be expected from the present process is its uniformity, compared to those where high temperatures are employed, in which the product varies, from a number of circumstances influencing the regular continuance of its degree. The precipitate is in the form of a white powder, and it constitutes the minor oxyd of Proust, which is composed of antimony 81,5, oxygen 18,5.

ANTIMONII SULPHURETUM PRÆCIPITATUM.

PRECIPITATED SULPHURET OF ANTIMONY.

Sulphur antimonii præcipitatum, P. L. 1787. P. L. 1745.

Take of Sulphuret of Antimony, in powder,
two pounds.

Solution of Potass, four pints.

Distilled Water, three pints.

Mix and boil the mixture over a slow fire for three hours, stirring it well, and occasionally adding distilled water so that the same measure may be preserved. Strain the solution forthwith through a double linen cloth, and while it is yet hot, drop in gradually as much sulphuric acid as may be required to precipitate the powder, then wash away the sulphate of potass, by hot water;

dry the precipitated sulphuret of antimony, and reduce it to powder.

Complicated attractions are here exercised; the primary agents are potass, antimony, sulphur, and water, which latter, in the process, is partly decomposed into its constituents, oxygen and hydrogen. The potass unites to the greater part of the sulphur and attracts hydrogen from the water, by which is formed a hydrosulphuret of potass. The oxygen unites to the antimony, and another portion of the hydrogen to the sulphur combined with it, forming a hydrosulphuretted oxyd of antimony; this latter is held dissolved in the water by the hydrosulphuret of potass, which, if the solution cool, has this power diminished, and therefore a part of the hydrosulphuretted oxyd thus precipitates and formed the old *kermes mineralis*. The addition of dilute sulphuric acid not only precipitates the hydrosulphuretted oxyd dissolved, but also the sulphur combined with the potass, and which of course in this preparation is intimately mixed with the former. The name used is, on these accounts, not strictly correct, but it is fully sufficient to designate the preparation. This medicine is in frequent use, and is therefore retained, though it may not be thought to possess any very great or specific advantages over other antimonial preparations. It has an orange colour, and hence has been sometimes called *Sulphur auratum antimonii*. Thenard (A. C. 32.), states its constituent parts to be sulphuretted hydrogen 17,87, oxyd 68,30, sulphur 12,00.

ANTIMONIUM TARTARIZATUM.

TARTARIZED ANTIMONY.

Antimonium tartarizatum, P. L. 1787. Tartarum emeticum,
P. L. 1745. Tartarus emeticus, P. L. 1720.

Take of Oxyd of Antimony, two ounces.

Supertartrate of Potass powdered,
three ounces.

Distilled Water, eighteen fluid-
ounces.

To the water, whilst boiling in a glass vessel, add gradually the antimony and supertartrate of potass, previously mixed together, and continue to boil for half an hour; then filter the solution through paper, and evaporate it in a gentle heat, so that, whilst it cools slowly, crystals may form.

This, which is a triple salt, is thus named for the reason given under the head Soda tartarizata. No preparation is of greater importance, or has been subjected to more varieties, as may be seen in an Essay upon it in Bergman's Opuscula; so much indeed does it differ in different Pharmacopœiæ, that Geoffroy found the proportion of oxyd of antimony to vary from $\frac{1}{15}$ to $\frac{1}{4}$ th. The former Pharmacopœia used as its base the Crocus antimonii, others have preferred the Antimonium vitrifactum, but it has been thought, upon the whole, that the precipitated oxyd is the most uniform and definite, and that it yields whiter crystals. It is necessary that the

whole of the supertartrate of potass should be combined with the oxyd, and therefore that there should be a full sufficiency of the latter, otherwise the first crystals, as it cools, will be of the supertartrate only; whilst, on the other hand, if a superabundance of oxyd of antimony be used it will remain upon the filter, and not influence the crystals; the former inconvenience therefore is especially to be avoided, and for that purpose more oxyd than may be strictly necessary is directed. The evaporation must not be carried too far, as there appears to be some tartrate of potass in the solution whose crystals will in that case be mixed with the triple salt. The crystals ought always to be formed, for it is only when they are that the proportions of the salt can be considered as precise. After the formation of the crystals, if the liquor be evaporated to dryness, it will often yield a transparent brownish yellow mass, which looks like resin, and which I have never examined accurately, farther than to assure myself that it contained antimony. The more perfect of them will be regular four-sided, or triangular pyramids, or eight-sided; they will become opaque on exposure to air, but will not crumble like the efflorescent salts. Very different statements are made respecting their solubility. Fourcroy says, that one part is soluble in 80 cold and 40 boiling water; and Duncan, that one part is soluble in 15 of water at 60° , and in 3 at 212° . Thenard gives its constituent parts as acid 35,4, oxyd 39,6, potass 16,7, water 8,3, or tartrate of antimony 56,3, tartrate of potass 35,4, water 8,3. It should be remembered in prescription, that this salt is decomposed by the alkaline earths, alkalies, their subcarbonats and hydrosulphurets, and also by decoctions of bitter and astringent plants, which latter yield a yellowish red precipitate, which is not emetic; and that Berthollet, upon this principle, proposes decoction of bark to be used as an antidote, when the salt has been taken in such quantities as to do injury.

PULVIS ANTIMONIALIS.

ANTIMONIAL POWDER.

Pulvis Antimonialis, P. L. 1787.

Take of Sulphuret of Antimony powdered,
a pound.

Hartshorn Shavings, two pounds.

Mix, and throw them into a broad iron pot heated to whiteness, and stir the mixture constantly until it acquires an ash colour. Having taken it out, reduce it to powder, and put it into a coated crucible, upon which another inverted crucible, having a small hole in its bottom, is to be luted. Then raise the fire by degrees to a white heat, and keep it so for two hours. Reduce the residuary mass to a very fine powder,

This preparation was introduced into the last Pharmacopœia as a substitute for a medicine of extensive celebrity, Dr. James's powder; to which, however, the present form more nearly assimilates in its dose, and it is also rendered more manageable in its administration, by the reduction of the proportion of antimony to one half. In the application of heat in this process, great care is necessary, and the uncertainty of uniformity in this respect, has, in other instances, induced the College rather to substitute precipitations. It has however been judged right to preserve the

present form, in preference to the analogous precipitated one of Mr. Chenevix, (Phil. Trans.) with an especial caution, that the heat be managed as closely as possible according to the directions, and be by no means continued for a greater length of time.

The following is the receipt for James's Powder, as extracted from the Records of Chancery.

“Take antimony, calcine it with a continual protracted heat in a flat unglazed earthen vessel, adding to it from time to time a sufficient quantity of any animal oil and salt, well dephlegmated; then boil it in melted nitre for a considerable time, and separate the powder from the nitre by dissolving it in water.—Take quicksilver, make an amalgam with equal parts of the martial regulus of antimony and pure silver, adding a proportionable quantity of sal ammoniac. Distil off the mercury by a retort into a glass receiver, then with the quicksilver make a fresh amalgama with the same ingredients; distil again and repeat this operation nine or ten times; then dissolve this mercury in spirits of nitre, and put it into a glass retort and distil to dryness; calcine the caput mortuum till it becomes of a gold colour; burn spirits of wine upon it, and keep it for use. The dose of the powder is uncertain. In general, thirty grains of the antimonial powder and one grain of the mercurial is a moderate dose.

Signed and sworn to by ROBT. JAMES.”

Probably, however, James's real process was formed upon one previously brought from Italy, which had its run in the fashion of the day, and was called *Lisle's powder*; and the preparation of which was very analogous to the present *Pulvis antimonialis*.

LIQUOR ANTIMONII TARTARIZATI.

SOLUTION OF TARTARIZED ANTIMONY.

Vinum antimonii tartarizati, P. L. 1787.

Take of tartarized Antimony, one scruple.

Boiling distilled Water, four fluid-
ounces.

Wine, six fluidounces.

Dissolve the tartarized antimony in the boiling distilled water, then add the wine.

The *Vinum Antimonii* of the last Pharmacopœia has been omitted in the present one, on account of its uncertainty, for it depended for its strength upon the quantity of acid contained in the wine used, and this is always very variable. It possessed no advantage over the preparation here given which is analogous to the *Vinum Antimonii tartarizati*, but differs from it in the proportion of the salt dissolved; each fluidounce of the latter contained four grains of tartarized antimony, which in the present preparation has been lowered to half the quantity or two grains in each fluidounce. The object of all these solutions being to afford a ready mode of dividing active substances into minute quantities for internal use, it has been thought that the proportions now given would be more convenient than the former.

PRÆPARATUM EX ARGENTO.

PREPARATION OF SILVER.

ARGENTI NITRAS.

NITRATE OF SILVER.

Argentum nitratum, P. L. 1787. Causticum lunare, P. L.
1745. P. L. 1720.

TAKE of Silver, an ounce.

Nitric Acid, a fluidounce and
half.

Distilled Water, two fluidounces.

Mix the nitric acid and water, and dissolve the silver therein on a sand bath; then increase the heat gradually that the nitrate of silver may be dried. Melt the salt in a crucible over a slow fire, until the water being evaporated, it ceases to boil; then pour it quickly into moulds of convenient shape.

- Nitric acid dissolves about half its weight of silver, but there is no objection to a superabundance of acid, as, if it

exist in the first, it is driven off in the subsequent parts of the process. The crucible in which it is melted should be of close texture, or a portion will be lost in the interstices; it should also be large, because the mass swells and may boil over; and the operator should further take care not to come into contact with the corrosive spray which is thrown up. The instant the ebullition ceases, and the substance remains at the bottom liquid and smooth like oil, it should be poured into moulds of iron, or pipe clay greased, after which it will, as it sets, assume a greyish colour and radiated appearance in its fracture. It is most especially used as a caustic for decomposing animal substances. It dissolves in an equal weight of water at 60°; the solution is colourless, but if the fused preparation be dissolved, some few thin dark films remain. Its taste is bitter and strongly metallic: it is considered by Proust as an oxynitrate. The metal is reduced by exposure to a strong light; and, indeed, it is an observation which may apply forcibly to all other metallic preparations as well as to this, that they should be kept carefully secluded from light.

Although *Refined Silver* is directed in the *Materia Medica*, it may not be superfluous here to repeat, that the purity of the metal is necessary to this preparation, and that its common alloys with copper, as in silver coinage, ought not to be used on any account.

PREPARATA EX ARSENICO.

PREPARATIONS OF ARSENIC.

ARSENICI OXYDUM PRÆPARATUM.

PREPARED OXYD OF ARSENIC.

REDUCE Oxyd of Arsenic to powder, then put it into a crucible, and apply heat so as to sublime it into another crucible inverted over the former.

Arsenic is usually mixed with the ores of other metals, and the oxyd of commerce is chiefly separated by sublimation from the cobalt ores of Saxony. It is found in the shops either under the form of white powder, or in shining semi-vitreous lumps, which latter fall into powder gradually on exposure to air; the lumps are to be preferred, but as they are prepared coarsely upon the large scale, it has been judged proper to submit the arsenic to another sublimation, as a pharmaceutical process, for the complete separation of any extraneous matters derived from the original ore. The sublimation may be effected by a heat of about 383° . White oxyd of arsenic has a sharp acrid taste, to which succeeds a slight sense of sweetness; its smell, when subliming, is peculiar, and very like that of garlic; one part dissolves in 80 of water at 60° , and in 15 of water at 212° ; it is soluble also in 80 parts of hot alkohol. From these solutions it may be crystallized into four-sided crystals. It whitens copper if heated between two plates of it. It is precipitated under the

form of sulphuret, by sulphuret of potass, or sulphuretted hydrogurets; heated with carbonaceous matter it is metallized, and in a heat of 356° sublimes into lamellar metallic plates. It consists of 75,2 metal, and 24,8 oxygen, according to Proust, and as it possesses many properties of the acids, it has been ranked among them by Fourcroy, and called Arsenious acid. If it has been taken into the stomach in quantity sufficient to produce deleterious effects, the proper practice seems to be to sheath the stomach from its contact by mucilages, and at the same time to endeavour to render it innocuous by chemical agents, of which the readiest, and a very effectual one, is a solution of sulphuret of potass.

LIQUOR ARSENICALIS.

ARSENICAL SOLUTION.

Take of prepared Oxyd of Arsenic in very fine powder,

Subcarbonate of Potass from Tartar, of each sixty-four grains.

Distilled Water, a pint.

Boil them together in a glass vessel until the arsenic is entirely dissolved. When the solution is cold, add thereto,

Compound Spirit of Lavender, four fluidrachms.

Lastly add as much more distilled water as may be requisite to make up a pint measure.

Arsenic, the most virulent of metallic poisons, has long been employed medicinally with success, but is now for the first time introduced into the Pharmacopœia. The probable abuse of any medicine affords no argument against its use, if it did, opium, oxymuriat of mercury, and many of our most potent articles, might be excluded from the list of *Materia Medica*. But where the smallest error may be attended by hazard, caution cannot be too often or too forcibly impressed; nor is an error in any given dose the only source of hazard, for mischief may follow its too long continuance in doses, which, separately taken, are insufficient to produce disturbance; in the former instance, it may destroy life with all its peculiar violence of symptoms, in the latter, it may, in some constitutions, produce tremor or paralytic affections, so that its administration ought to be carefully watched; if it be, its powers as a medicine are marked and useful, and the College, by its introduction, have hoped rather to obviate those abundant evils which follow its irregular use as a secret medicine. This preparation depends upon the union of the oxyd with potass, and the solubility of the new compound in water, which forms, if the nomenclature of Fourcroy be adopted, an Arsenite of potass. It accords with the formula of the late Dr. Fowler, of Stafford, who first introduced it, in imitation of a celebrated popular remedy for intermittents sold under the name of Tasteless Ague Drops. The compound spirit of lavender is only intended to give some colour and taste, without which it would look like common water, and hence be more liable to mistakes. Where the dose is small and the effects so powerful, the most minute attention to its proportion and preparation become necessary. Each fluidounce contains four grains of the oxyd, and each fluidrachm half a grain, but it will sel-

dom be proper to go beyond ten minims as a dose for an adult.

Another modification of arsenic, consisting of the metallic base united to a still larger proportion of oxygen, and then called by Fourcroy Arsenic acid, has also been used in medicine, combined with potass, under the name of *Macquer's arsenical salt*. It is usually formed by heating in a crucible equal parts of nitre and white oxyd of arsenic, as long as any nitrous gas comes over; then dissolving the mass in water, and crystallizing the salt by evaporation. The same salt has also been formed by uniting the arsenic acid previously prepared, with the alkali. As the management of the heat is a circumstance of some nicety, and as unequally applied, it may produce uncertainty in the result; the present preparation, which has also the advantage of pretty extensive experience in its favour, has been adopted.

PRÆPARATA E CUPRO.

PREPARATIONS OF COPPER.

CUPRUM AMMONIATUM.

AMMONIATED COPPER.

TAKE of Sulphate of Copper, half an ounce.

Carbonate of Ammonia, six drachms.

Rub them together in a glass mortar until the mixture ceases to effervesce, then dry the ammoniated copper, wrapped in bibulous paper, in a gentle heat.

This preparation is now first introduced into the Pharmacopœia, and the process, which is that also of the Edinburgh college, and sufficiently correct for medical purposes, is employed instead of any more expensive methods by precipitation. It requires to be dried very gently, for increase of heat will detach a portion of the ammonia; and as it is so readily prepared, it is better that small quantities only should

be made at a time. Its rich dark blue colour and ammoniacal smell are the tests of its goodness. Its chemical composition has not been correctly ascertained; probably it is a subsulphat of copper and ammonia.

The term ammoniatum is used not as explaining the composition of the substance which is not a mere compound of Ammonia and Copper (*Ammoniaretum Cupri*), but as avoiding a more prolix name, and answering every purpose of designation without leading into error; the same observation also applies to Ferrum ammoniatum.

LIQUOR CUPRI AMMONIATI.

SOLUTION OF AMMONIATED COPPER.

Aqua cupri ammoniati, P. L. 1787. *Aqua sappharina*, P. L. 1745. P. L. 1720.

Take of Ammoniated Copper, a drachm.
Distilled Water, a pint.

Dissolve the ammoniated copper in the water, and filter the solution through paper.

This was prepared in the last Pharmacopœia by mixing lime and muriate of ammonia in water, and letting the mixture stand in a copper vessel.

PRÆPARATA E FERRO.

PREPARATIONS OF IRON.

FERRUM AMMONIATUM.

AMMONIATED IRON.

Ferrum ammoniacale, P. L. 1787. Flores martiales, P. L. 1745. Ens veneris, P. L. 1720.

TAKE of Carbonate of Iron,
Muriate of Ammonia, of each a
pound.

Mix them intimately, and sublime by immediate exposure to a strong fire; lastly, reduce the sublimed ammoniacal iron to powder.

The original base of this preparation was Mr. Boyle's Ens Veneris, but doubts were entertained as to the sort of vitriol he employed, whether green or blue, which his description of the process by no means clears up. Metallic iron was directed in the former Pharmacopœia, but before it could decompose the muriate of ammonia is required to be oxydated, and this was imperfectly done by the decomposition of the water contained in that salt. The process is therefore shortne-

ed, and one sublimation rendered sufficient by the use of iron already in its state of red oxyd, and modifying the directions for the regulation of the fire. Intimate admixture of the two substances, and exposure at once to a strong heat, are necessary; for it is only in high temperatures that oxyd of iron will decompose any of the muriate of ammonia, and lower ones will sublime away the muriate of ammonia unaltered. As great heats cannot well be defined or correctly regulated, I have doubted whether this and many other metallic preparations, dependant upon temperature, might not otherwise be prepared more uniformly; as for instance, if a given proportion of *tinctura ferri muriati* was added to a solution of muriate of ammonia, and the mixture evaporated to dryness. The more intense the heat the greater proportion of iron will the sublimate contain, and this difference is evident in the variations of its colour, as collected in different parts of the neck of the retort. It consists of red muriate of iron, mixed by sublimation with muriate of ammonia. It is orange-coloured, with a smell resembling saffron, is deliquescent, and soluble in alkohol. The residue which is deliquescent, consists also of red muriate of iron, and was formerly kept under the name of *lixivium martis*.

FERRI CARBONAS.

CARBONATE OF IRON.

Ferri rubigo, P. L. 1787. *Chalybis rubigo præparata*, P. L. 1745. *Chalybs præparatus cum aceto, et sine aceto*, P. L. 1720.

Take of Sulphate of Iron, eight ounces.

Subcarbonate of Soda, ten ounces,

Boiling Water, a gallon.

Dissolve the sulphate of iron and subcarbonate of soda separately, each in four pints of water; next mix the solutions together, and set it by, that the precipitated powder may subside; then having poured off the supernatant liquor, wash the carbonate of iron with hot water, and dry it upon bibulous paper in a gentle heat.

There are two oxyds of iron, both of which are combinable with acids and form different modifications of the same salt, a distinction which requires to be especially attended to in medicine; they have been named from their colour, black and red oxyds; the former, which is black, or (if formed as in the present instance by precipitation from water) greenish, consists of iron 73, oxygen 27, according to Lavoisier. It may be formed by various methods, as by exposure of a paste of iron filings and water to the air; by heating together one part of red oxyd of iron and two parts iron filings; and by adding a solution of alkali to one of green sulphate of iron, and drying the precipitate quickly without exposure to air: and it is kept as a separate article in the Edinburgh Pharmacopœia, under the name of *Ferri Oxydum nigrum purificatum*. The latter, or red oxyd, consists, according to Proust, of iron 52, oxygen 48, and in its relation to black oxyd is composed of 66,5 of that oxyd, and 33,5 of additional oxygen. Some chemists have supposed the existence of other gradations of combination of iron and oxygen, but the above are all that are generally admitted, or require to be noticed here; this latter also is kept in the Edinburgh

Pharmacopœia, under' the name of *Oxydum ferri rubrum*, and is intended to be in that state of oxydation to which the metal is to be brought by the present preparation. Salts containing the black oxyd, on exposure to air, pass to the state of red oxyd, by attracting oxygen from it, and in the process of drying the same change happens here to the oxyd in the subcarbonate, which at the time of its first precipitation is a black oxyd. The same substance, more imperfectly prepared, constituted the rust of iron (*ferri rubigo*) of the former Pharmacopœia, for which, in all the processes into which it entered, this precipitate is now substituted. The red oxyd of the Edinburgh College, is the old Colcothar vitrioli, and formed by exposure of common sulphate of iron to a strong heat, sufficient to drive over its sulphuric acid, when the red oxyd remains behind, as in the process which was formerly in use for obtaining that acid. Subcarbonate of soda is preferred for the precipitation to that of potass, on account of the greater solubility of the sulphate of the former than of the latter alkali, and the consequent facility with which it may be washed away. The salt is a subcarbonate, but as only one of the compounds is kept, the relation is not expressed.

FERRI SULPHAS.

SULPHATE OF IRON.

Ferrum vitriolatum, P. L. 1787. Sal martis, P. L. 1745.

Sal seu Vitriolum martis, P. L. 1720.

Take of Iron,

Sulphuric Acid, of each by weight
eight ounces.

Water, four pints.

Mix together the sulphuric acid and water in a glass vessel, and add thereto the iron; then after the effervescence has ceased, filter the solution through paper, and evaporate it so that crystals may form as it cools. Having poured away the water, dry these upon bibulous paper.

This salt is formed upon the large scale from native sulphuret of iron (*pyrites*), by moistening, and exposing it to the open air. The sulphate of iron is afterwards dissolved in water and crystallized by evaporation; but, in order to obtain an uniform and pure salt, its preparation is here directed as a process of pharmacy. Sulphuric acid will unite either with the black or red oxyd; the first of these is the salt here intended for internal use, and upon this point great stress ought to be laid, as the last is the state in which the sulphate of trade is usually found, and which, for medical purposes, is a very distinct and inferior thing. Its crystals are transparent rhomboidal prisms, of a light green colour; its taste is astringent and strong, and it reddens vegetable blues. One part is soluble in two of cold, and in three-fourths of boiling water. It is insoluble in alkohol, in which menstruum the red sulphate is soluble, and this affords a mode of ascertaining the existence of the latter with the former, as also of separating it. On exposure to air it is gradually converted into red sulphate: it consists, according to Kirwan, of acid 26, iron 28, water 46. Heat drives off the water of crystallization, and the salt remains white; if urged farther, it drives over the acid, and leaves first a red sulphate, and at last a red oxyd of iron.

FERRUM TARTARIZATUM.

TARTARIZED IRON.

Ferrum tartarizatum, P. L. 1787.

Take of Iron, a pound,
Supertartrate of Potass, powdered,
two pounds.
Water, a pint.

Rub them together and expose them to the air in a broad glass vessel for eight days, then dry the residue in a sand bath, and reduce it to a very fine powder. Add to this powder a pint more of water, and expose it for eight days longer; then dry it, and reduce it to a very fine powder.

This is a triple salt, in which the iron is first oxydated by being moistened and exposed to air, and then combines with the superabundant acid of the supertartrate of potass; it is therefore a tartrate of potass and iron. The process of the former Pharmacopœia seemed insufficient for the complete formation of the salt, for some of the iron always remained in its metallic state, and was attractable from it by the magnet; a repetition of the moistening and exposure is therefore now directed. It may be dissolved in water and crystallized.

LIQUOR FERRI ALKALINI.

SOLUTION OF ALKALINE IRON.

Take of Iron, two drachms and a half.

Nitric Acid, two fluidounces.

Distilled Water, six fluidounces.

Solution of Subcarbonate of Potass, six fluidounces.

Having mixed the acid and water, pour them upon the iron, and when the effervescence has ceased, pour off the clear acid solution: add this gradually, and at intervals, to the solution of subcarbonate of potass, occasionally shaking it, until it has assumed a deep brown red colour, and no further effervescence takes place. Lastly, set it by for six hours, and pour off the clear solution.

This preparation was first described by Stahl (*Opusc. Phy. Chem. Med. Hal.* 1715.) and called *Tinctura martis alkalina*; it is now first introduced into the *Pharmacopœia*, as affording a combination of iron, distinct from any other, and often applicable to practice. Its chemical composition has not been exactly ascertained, but there is reason to believe that it is a triple salt, formed by the union of nitric acid with red oxyd of iron, and with potass. The directions given by Stahl are by no means certain in their effect, and seem especially erroneous in ordering the complete saturation of the acid

with the iron. Beaumè and Kerr found it to succeed more constantly, and almost certainly, by the use of a solution of iron not nearly saturated, and very acid. In this state it has not the reddish yellow colour of a saturated solution, but is clear and slightly greenish. This is intended to be effected by the directions given; but if by accident the solution should go farther, the proper colour will be immediately restored by the addition of a small quantity of the acid. It seems also necessary that the solution should be made slowly, which will depend upon the strength of the acid, and upon the quantity of surface of the metal which is exposed to it. The iron, therefore, should be added in a lump (as a nail, or thick wire), and not in filings. It will succeed by the gradual addition of either solution to the other: but it has appeared to me to be more certain when made according to the directions given in the text, and by shaking the mixture after each addition of the acid solution to the alkaline one. The proportions are pretty nearly as here given, but they require to be checked by occasional examinations, particularly by the taste, which ought to have a predominance of alkalescence in it. After standing, nitrate of potass usually crystallizes, from which the clear deep brownish red liquor is to be poured off.

TINCTURA FERRI AMMONIATI.

TINCTURE OF AMMONIATED IRON.

Tinctura ferri ammoniacalis, P. L. 1787. *Tinctura florum martialium*, P. L. 1745. *Tinctura martis Mynsichti*, P. L. 1720.

Take of Ammoniated Iron, four ounces,

Proof Spirit, a pint.

Digest and strain,

TINCTURA FERRI MURIATIS.

TINCTURE OF MURIATE OF IRON.

Tinctura ferri muriati, P. L. 1787. *Tinctura martis in spiritu salis*, P. L. 1745. *Tinctura martis cum spiritu salis*, P. L. 1720.

Take of Carbonate of Iron, half a pound,
Muriatic Acid, a pint.
Rectified Spirit, three pints.

Pour the acid upon the carbonate of iron in a glass vessel, and shake it occasionally for three days. Set it by that the fæces, if there be any, may subside; then pour off the solution, and add the spirit.

This salt appears to be an oxymuriate of iron, the red oxyd of iron employed becoming on its combination with the acid, black oxyd, and giving over its superabundant oxygen to the muriatic acid. This appears to be its state because sulphuric acid added to it detaches oxymuriatic acid, and heat drives over oxymuriatic acid; and in the latter instance, although the red oxyd was used for its preparation, the black oxyd remains behind. The salt evaporated to dryness yields an orange-coloured mass, which is uncrystallizable, deliquesces on exposure to air, and is soluble in alkohol. The tincture has a brownish yellow colour and very astringent taste.

VINUM FERRI.

WINE OF IRON.

Vinum ferri, P. L. 1787. Vinum chalybeatum, P. L. 1745.
P. L. 1720.

Take of Iron Filings, two ounces.

Wine, two pints.

Mix and set the mixture by for a month, occasionally shaking it; then filter it through paper.

There are many well-founded objections to the use of wine as a chemical solvent, but this preparation has been practically found so useful and convenient, that the College have judged proper still to retain it unaltered.

PRÆPARATA EX HYDRARGYRO.

PREPARATIONS OF MERCURY.



HYDRARGYRI OXYMURIAS.

OXYMURIAT OF MERCURY.

Hydrargyrus muriatus, P. L. 1787. Mercurius corrosivus sublimatus, P. L. 1745. P. L. 1720.

TAKE of purified Mercury, *by weight*, two pounds.

Sulphuric Acid, *by weight*, thirty ounces.

Dried Muriate of Soda, four pounds.

Boil the mercury with the sulphuric acid in a glass vessel, until the sulphate of mercury is left dry. Rub this, when it is cold, with the muriate of soda in an earthenware mortar; then sublime it in a glass cucurbit, increasing the heat gradually.

This salt is directed according to the process which was introduced into the last Pharmacopœia, and which originated with Boulduc, in 1730. An infinity of other methods have been employed, but none is more simple, convenient, or uniform than this. The first division of the process forms a sulphate of mercury, a portion of the sulphuric acid yielding its oxygen to the metal in a boiling temperature, and passing over in the form of sulphurous acid gas. The metal thus oxydized unites to the remaining sulphuric acid, and a white sulphate remains. On account of the gas which arises, this should be performed with some caution on the part of the operator. In the second division, the sulphate of mercury is mixed intimately with dry muriatè of soda, and on exposure to heat a double decomposition takes place, and the oxymuriate of mercury sublimes. It forms a dead white, shining, spicular mass, easily powdered, not altered by exposure to air, and it has a highly acrid, caustic, metallic taste. It is one of the most violent poisons known. One part is soluble in 20 of water at the ordinary temperature, and in 2 at 212: 100 parts of boiling alcohol dissolve 88. If the fixed alkalies be added to a solution of it, an orange-coloured precipitate forms, which soon changes to a brick red. It is soluble in acids without decomposition. Mr. Chenevix states its constituent parts to be metallic oxyd 82, acid 18, and that the oxyd consists of 17,6 oxygen, 32, 4 metal, and the salt divided into its three component parts of 69,7 metal, 12,3 oxygen, 18 acid. This relation is of much consequence in comparing it with another compound of the same elements (*Hydrargyri Submurias*). The College have had considerable difficulty in affixing names to these two compounds, which might sufficiently distinguish between them, and express their relations, and at the same time avoid the unscientific term *Calomel*, which had been adopted for one of

them in the former Pharmacopœia. The term Oxymuriate has mostly been used to express combinations of oxymuriatic acid, but here the acid is certainly in the state of common muriatic acid, and the larger proportion of oxygen it contains is combined with the metal; still as such greater relative proportion of oxygen does actually exist, they have considered themselves justified in this use of the term, rather than have recourse to qualities, which are avoided in all other instances, for the distinction; they have, therefore, discontinued the name adopted in the first specimen (*hydrargyrius corrodens muriaticus*).

LIQUOR HYDRARGYRI OXYMURIATIS.

SOLUTION OF OXYMURIATE OF MERCURY.

Take of Oxymuriate of Mercury, eight grains.

Distilled Water, fifteen fluid-ounces.

Rectified Spirit, a fluidounce.

Dissolve the oxymuriate of mercury in the water, and add the spirit.

This solution is directed in order to facilitate the administration of divisions of the grain of this active medicine. Each fluidrachm contains $\frac{1}{16}$ th of a grain of the salt. The spirit, though it assists, is not absolutely necessary to the se-

lution of this quantity, but it preserves it afterwards, and prevents the vegetation of mucor, to which all saline solutions are liable.

HYDRARGYRUS CUM CRETA.

MERCURY WITH CHALK.

Hydrargyrus cum creta, P. L. 1787. Mercurius alkalizatus, P. L. 1745.

Take of purified Mercury, *by weight*, three ounces.

Prepared Chalk, five ounces.

Rub them together until the metallic globules disappear.

This preparation is milder than any other mercurial one, and does not so easily act upon the bowels; it is therefore used largely by many practitioners. It appears to be very slightly oxydized by the trituration, as it contains, according to Fourcroy, only $\frac{4}{100}$ of oxygen.

HYDRARGYRI SUBMURIAS.

SUBMURIATE OF MERCURY.

Calomelas. Hydrargyrus muriatus mitis, P. L. 1787. Mercurius dulcis sublimatus, P. L. 1745. Calomelas, si quater aut pluries sublimatur mercurius dulcis sublimatus, P. L. 1720.

Take of Oxymuriate of Mercury, a pound.
Purified Mercury, *by weight*, nine ounces.

Rub them together until the metallic globules disappear; then sublime; take out the sublimed mass, and reduce it to powder, and sublime it in the same manner twice more successively. Lastly, bring it into the state of very fine powder, by the same process which has been directed for the preparation of chalk.

This preparation of mercury is in most extensive use, and therefore requires especial attention. Four parts of oxymuriate are triturated with three of mercury until the globules of the latter disappear, and as in this operation the lighter particles of the acrid salt are driven about, the operator should cover his mouth and nostrils while he is performing it. Some have advised the addition of a little water or spi-

rit to prevent this effect; and there can, in practice, be no objection to the use of either. For the sublimation of the compound a greater heat is required than for that of the oxymuriate alone. It forms in the subliming vessels a compact, hard, shining, striated cake. If the union be not complete, some oxymuriate will first arise and will be seen to form the first deposition; or on the other hand, a little metallic mercury may sublime in the same way; either extreme is to be avoided, but the latter is the least injurious. This submuriate is tasteless and insoluble in water or alcohol, or very nearly so, according to Rouelle, who states it to require for solution 1152 parts of water. Chenevix gives as the proportions of its constituent parts, muriatic acid 11,5, oxyd of mercury 88,5, and this oxyd itself consists of metal 89,3, oxygen 10,7; others have fixed the proportion of oxygen lower, as 0,05: there is no doubt, however, that it is a minor oxyd to that which exists in the oxymuriate. According to Beaumè, there is no intermediate state between the two preparations, and if too large a proportion either of oxymuriate or mercury be used it will sublime unaltered. The present proportions are taken as the best, from the result of very extensive practice, though it may seem from Mr. Chenevix's analysis, that more mercury is directed than is actually necessary; for, according to him, 54 parts of metal are sufficient for 100 of oxymuriate; 75 is the proportion here used. According to the received nomenclature of sub-salts, this ought rather to be considered as a muriate of mercury; it does not differ from the oxymuriate merely in the lesser proportion of its acid, for the addition of more acid does not convert it into the oxymuriate, but the difference lies in the relative degree of oxidation of the base; and upon the whole, it has been thought practically unsafe to adopt a term nearly allied to *hydrargyrus muriatus*,

which has heretofore been generally used for the acrid oxymuriate, and much better to adopt a definite name for each, which, with common attention, can scarcely be confounded together in prescription, than to take either a long and circuitous mode of expression, or a name which might be attended with risk. A very elegant and useful modification of this process has lately been adopted by Mr. Howard, chemist, who sublimes the submuriate into water, with the vapour of which it mixes as it arises in its gaseous form, and subsides at once as a fine impalpable precipitate to the bottom of the water. Formerly preparations of mercury analogous to this were distinguished according to the number of sublimations they had undergone. After three sublimations it was *Mercurius dulcis*, after six *Calomelas*, and after eight *Panacea mercurialis*; but, according to Beaumè, a small portion of oxymuriate is formed by each of these repeated sublimations, probably from the absorption of oxygen by the heated preparation from the air of the vessels, and hence no advantage, but rather the contrary, must arise from an increased number of the operations. The *Pharmacopœia* of 1745 had six sublimations; that of 1787, as the directions seem to express it, five; and now they are reduced to three, which are, in fact, fully sufficient, especially with that subsequent application of water which the mode adopted for reducing it to a fine powder requires.

HYDRARGYRI NITRICO-OXYDUM.

NITRIC-OXYD OF MERCURY.

Hydrargyrus nitratus ruber, P. L. 1787. Mercurius corrosivus ruber, P. L. 1745. Mercurius præcipitatus corrosivus, P. L. 1720.

Take of purified Mercury, *by weight*, three pounds.

Nitric Acid, *by weight*, a pound and half.

Distilled Water, two pints.

Mix in a glass vessel, and boil the mixture in a sand bath until the mercury being dissolved, and the water also evaporated, a white mass remains. Rub this into powder and put it into another shallow vessel, then apply a moderate heat, and raise the fire gradually until the red vapour ceases to arise.

In the former Pharmacopœia one drachm of muriatic acid was added to one pound of nitric; and in that of 1745, a similar compound was first employed; the addition is not, however, necessary to the ultimate product, and is therefore now omitted. It is difficult to say for what purpose it was ever used, for if any oxymuriate of mercury was formed in the first, it would sublime away in the subsequent part of the process; perhaps it might be thought that by subliming

away a portion, the residuary mass would be left in a more spongy state, and would more readily, for this reason, shoot into the brilliant plated crystals which form the most common test of its perfection. The object is to obtain a red oxyd of mercury by the decomposition of its nitrate by heat; in the first place, therefore, the nitrate is formed by boiling the metal in the acid, and evaporating the solution to dryness. The different compounds which nitric acid forms with mercury, according to the degree of oxydation of the metal, and the relative proportions of the metal and oxyd, are not now to be considered; the result is here, in the first instance, a Nitrate of mercury oxydized to its maximum. In the second place, when this salt is exposed to heat, nitrous gas arises, indicated by the orange-coloured fumes it forms when it meets the oxygen of atmospheric air, and the mass assumes successively a yellow orange, and at last a bright red colour, with a crystalline appearance. The second part has usually been conducted in the matrass in which the solution was first made, to which it may be objected, that when the external part of a large mass is sufficiently decomposed, the internal part is altered in a less degree, as is evinced by the difference of colour of its several layers, and that the whole is unequally affected; the directions are therefore thus modified, that the whole may be equally heated: a change of the vessel is directed, and if a muffle be used for the latter part of the process, it will allow of occasional inspection, and of the mass being stirred about; so that it may be more equally heated, and a more uniform oxyd be left; the heat should be steady and continued as long as any nitrous gas arises. If it be urged further, and to redness, the oxyd is decomposed, oxygen gas is then given over, and the mercury reduced to its metallic state. The commencement of this second decomposition is taken by M. Passaye (A. C. 51), as a test of

the perfection of the first, by the inflammation of a match, in a state of low combustion, introduced into the gas which arises. It appears to me, that if the preparation be attentively conducted, it will not be a subnitrate, but a red oxyd only. Fourcroy gives as its component parts, Mercury 92, and Oxygen 8. Chenevix, Mercury 85, Oxygen 15.

HYDRARGYRI OXYDUM CINEREUM.

GREY OXYD OF MERCURY.

Take of Submuriate of Mercury, an ounce,
Lime Water, a gallon.

Boil the submuriate of mercury in the lime-water, constantly stirring, until a grey oxyd of mercury is separated. Wash this with distilled water, and then dry it.

Under the heads of Hydrargyri Oxymurias, and Hydrargyri Submurias, the different relations of the mercury to oxygen in each have been stated. In the submuriate it is a minor black oxyd, and in the decomposition of the salt, by any stronger affinity, as by that of lime or alkalies, this oxyd is separated. It consists, according to Fourcroy, of mercury 96, oxygen 4. The same oxyd exists also in the pilulæ hydrargyri, but it is often convenient to have it in the form of powder. It may also be used for fumigations, as it resembles in its product the more complicated formula used by Lalouette, for his fumigating powder.

HYDRARGYRI OXYDUM RUBRUM.

RED OXYD OF MERCURY.

Hydrargyrus calcinatus, P. L. 1787. Mercurius calcinatus, P. L. 1745.

Take of purified Mercury, *by weight*, a pound.

Pour the mercury into a glass matrass with a very narrow mouth and broad bottom. Apply a heat of 600° to this vessel, without stopping it, until the mercury has changed into red scales; then reduce these to a very fine powder.

This preparation was first introduced into the Pharmacopœia of 1745. There is very little difference between it and the nitric oxyd, if the latter be well prepared; except, perhaps, that, in this there is somewhat more oxygen; Lavoisier says, oxygen 10, mercury 90. But as the composition of this oxyd is matter of more certainty, as it can contain no nitric acid, and as it is given internally by many practitioners; as too, according to the modern mode of its preparation, and the employment of the necessary fire for other purposes at the same time, it is not an expensive article, it has been thought right to retain it; and the terms used to express each are sufficiently indicative of their difference of preparation to prevent confusion. A thin stratum of mercury is introduced into a matrass, with a broad flat bottom, and long narrow neck, drawn out to a capillary opening; this prevents the escape of the mercury, and allows a slow admission of air, the oxygen

of which, at the degree of heat applied, gradually unites with the metal, first into blackish scales, and at last forming a mass of a somewhat deeper red colour than the nitric oxyd, which is to be reduced to a fine powder. The whole process may probably require an exposure of six weeks.

HYDRARGYRUS PRÆCIPITATUS ALBUS.

WHITE PRECIPITATED MERCURY.

Calx hydrargyri alba, P. L. 1787. Mercurius præcipitatus albus, P. L. 1745.

Take of Oxymuriate of Mercury,
Muriate of Ammonia, of each
half a pound.
Solution of Subcarbonate of
Potass, half a pint.
Distilled Water, four pints.

First dissolve the muriate of ammonia, then the oxymuriate of mercury, in the distilled water, and add thereto the solution of subcarbonate of potass. Wash the precipitated powder until it becomes tasteless; then dry it.

The title of this salt is taken from the mode of preparation rather than chemical composition, on account of the

complexity of its combination, and the difference of opinion which exists as to its actual state; and also, because it appears to be sufficiently distinctive. Fourcroy considers that there are two different triple salts of muriatic acid, with mercury and ammonia, depending upon the different proportions of the acid, which he distinguishes as soluble and insoluble mercurio-ammoniacal muriates. If ammonia be added in excess to a solution of oxymuriate of mercury, a white insoluble precipitate is formed, consisting of oxyd of mercury 0,81, muriatic acid 0,16, ammonia 0,03, and muriatic acid being added thereto, combines with the salt and dissolves it, converting the insoluble muriate into the soluble one. A similar compound is formed at once by adding the oxymuriate of mercury to a solution of muriate of ammonia. Five parts of the oxymuriate require 100 of water to their solution; but this same quantity will be dissolved in three parts of water, if one of muriate of ammonia be previously dissolved therein, and this triple soluble compound was the *Sal Alembroth*, or salt of wisdom, of the alchemists. The addition of subcarbonate of potass deprives the soluble salt of a portion of its muriatic acid, and thus converts it into the insoluble one, which, in fact, seems to form the white precipitated mercury here directed.

HYDRARGYRUS PURIFICATUS.

PURIFIED MERCURY.

Hydrargyrus purificatus, P. L. 1787. *Argentum vivum purificatum*, P. L. 1745.

Take of Mercury, *by weight*, six pounds,
Iron Filings, a pound.

Rub them together, and distil the mercury from an iron retort, by the application of heat to it.

Mercury is often adulterated by metals of inferior price, with which it will amalgamate, and on this account a preparation of it for pharmaceutical purposes has always been found necessary, to effect which, its comparative volatility supplies a ready mode. If, in addition hereto, iron in a divided state be employed, which has a stronger attraction to the added metals than mercury itself has, and at the same time does not unite with mercury, the heat may be continued so that the whole of the latter may be distilled over without loss. The proportion of iron is here diminished to $\frac{1}{6}$ th, which is practically sufficient: in the former Pharmacopœia equal weights were directed. An iron retort is also to be used, as not being liable to break; and further, as mercury, when boiling, bubbles up strongly, it is necessary that it should be large enough to contain three times the quantity of the actual charge. The neck of the retort should be elongated by an adapter, and a receiver of iron or earthen ware should be used to collect the mercury.

HYDRARGYRI SULPHURETUM RUBRUM.

RED SULPHURET OF MERCURY.

Hydrargyrus sulphuratus ruber, P. L. 1787. Cinnabaris
factitia, P. L. 1745.

Take of Purified Mercury, *by weight*, forty
ounces.

Sublimed Sulphur, eight ounces.

Having melted the sulphur over the fire, mix in the mercury, and as soon as the mass begins to swell, remove the vessel from the fire, and cover it with considerable force, to prevent inflammation; then rub the mass into powder and sublime.

Two sulphurets of mercury were inserted in the last Pharmacopœia, but one is thought sufficient for any of the purposes to which it is applied, and this, which is the most uniform and perfect of the two, is retained. The first of them, *hydrargyrus cum sulphure*, was formed by triturating together equal parts of sulphur and mercury until the globules disappeared and a uniform black powder was formed; but this was seldom so completely effected as that metallic globules were not still visible by a magnifying glass. The second had the immediate union facilitated, in the first instance, by heat, for the mercury was added to the sulphur previously fused, and

the sulphuret was afterwards sublimed, and formed *hydrargyrum sulphuratus ruber*. The difference of colour, form, and relation to other substances, demonstrate that these two combinations of the same ingredients differ from each other, but the circumstances upon which this difference depends have been variously explained. Fourcroy states that it arises from a greater proportion of oxygen being combined with the metal in the last than in the first, assuming that each is in fact a sulphuret of *oxyd* of mercury. But more lately Proust (*Journ. de Phys.* 53.) has said, that each is merely a sulphuret of mercury, and differs from the other in the proportion of sulphur, and also, that the sublimed sulphuret consists of mercury 0,85, sulphur 0,15. After the admixture of the two substances in the first part of the process, the mass heats, swells, and explodes with considerable force, and if it be then exposed to the air it will inflame: The commencement therefore of this effect is to be carefully watched, a cover immediately put upon the vessel and pressed upon by a great weight, proportionate to the quantity. Caution is necessary afterwards that the neck of the vessel from which it is sublimed is not so small as to be stopped up by the condensation of the sublimed sulphuret, which will very probably happen if a common retort be used. The sulphuret, thus prepared, forms a deep red cake, with a shining striated appearance, and, when reduced to powder, assumes that rich red colour which characterises vermilion, under which name it is known in the arts. It is tasteless, not altered by air, insoluble in water or alkohol, sublimes unchanged in close vessels, and burns in the open air with a blue flame. The mercury may be distilled from it by heating it with iron filings, which unite with the sulphur.

PRÆPARATA E PLUMBO.

PREPARATIONS OF LEAD.

LIQUOR PLUMBI ACETATIS.

SOLUTION OF ACETATE OF LEAD.

Aqua lithargyri acetati, P. L. 1787.

TAKE of Semi-vitreous Oxyd of Lead, two pounds and four ounces.

Acetic Acid, a gallon.

Mix, and boil down to six pints, constantly stirring; then set it by, that the feculencies may subside, and strain.

This is a dense liquor of a deep brown colour, and consists of a saturated solution of subacetate of lead. It was restored in the last Pharmacopœia, in consequence of the celebrity it had obtained under the name of *Goulard's Extract*.

PLUMBI SUPERACETAS.

SUPERACETATE OF LEAD.

Cerussa acetata, P. L. 1787. Saccharum saturni, P. L. 1745,
P. L. 1720.

Take of Carbonate of Lead, a pound.

Acetic Acid, a gallon and half.

Boil the carbonate of lead in the acid until it be saturated, then strain the solution through paper, and having evaporated the water until a pellicle begins to appear upon the surface, set it aside that crystals may form. Having poured away the water, dry these crystals upon bibulous paper.

This salt is manufactured upon a large scale, chiefly for the use of dyers, from which source much of that which is used in medicine is improperly supplied. Care must be taken that the subcarbonate of lead be free from any adulteration of carbonate of lime (*whitening*), which is no uncommon fraud: that which is called *flake lead* is the purest. When it is prepared according to the process here directed, its crystals are white, with a very slight tinge of brown, and these build up irregular masses of short spicular crystals, somewhat resembling lumps of sugar, like which, they have also a sweetish taste, joined with somewhat of an astringent one; from this similarity, one of its trivial names, *sugar of lead*, has been derived. It reddens vegetable blues: 1,00 parts of water at 212

dissolve 0.29, and when cold, retain 0.27. It is also soluble in alcohol, and is decomposed by most of the acids, alkalies and earths. Dr. Bostock (*Nicholson's Journal*, ii.) gives the following relation between a saturated solution of this salt and the solution of subacetate of lead, before described. Solution of this superacetate: oxyd 16,8, acid 7,5, water 75,7. Solution of acetate of lead: oxyd 23,1, acid 5, water 71,9. The following are stated by Mr. Thomson as the constituent parts of the two salts in a crystallized state. Of the superacetate: oxyd 58, acid 26, water 16 = 100. Of the acetate: oxyd 78, acid 17, water 5 = 100. An experiment of Scheele's, by which he converted a saturated solution of the superacetate, which was then called sugar of lead, into the acetate then called Goulard's extract, by immersing a plate of metallic lead in the former, farther illustrates the relative proportions of each. A leaden vessel was directed in P. L. 1745 to be employed, to which there can be no objection.

LIQUOR PLUMBI ACETATIS DILUTUS.

DILUTED SOLUTION OF ACETATE OF LEAD.

Aqua lithargyri acetati composita, P. L. 1787.

'Take of Solution of Acetate of Lead, a
drachm.

Distilled Water, a pint.

Weak Spirit, a fluidrachm.

Mix.

When this mixture is made, even with distilled water some precipitation takes place; and when, as is more common, ordinary water, containing any muriates or sulphates, is used, this is much more abundant from double decomposition, and gives the liquor a milky appearance when diffused through it. To this it owes its common name of *white wash*.

PRÆPARATA E ZINCO.

PREPARATIONS OF ZINC.

CALAMINA PRÆPARATA.

PREPARED CALAMINE.

Calamina præparata, P. L. 1787.

BURN the calamine, and reduce it to powder; then let it be brought into the state of a very fine powder, in the same manner that chalk is directed to be prepared.

ZINCI OXYDUM.

OXYD OF ZINC.

Zincum calcinatum, P. L. 1787.

Throw gradually small pieces of zinc into a large deep crucible heated to whiteness, and inclined towards the front of the fire, another crucible being placed over it, so that the zinc may be exposed to the air and may be frequently stirred with an iron rod. Remove immediately the oxyd which forms; then pass its white and lighter part through

a sieve. Lastly, pour water upon it, so that a very fine powder may be made, in the manner directed for the preparation of chalk.

In this process the zinc is inflamed, and the oxyd formed by its inflammation is collected; hence the precautions directed as to the size, depth, and temperature of the crucible, and to the exposure of fresh surfaces of the metal by removing the crust of oxyd which forms upon its surface. The metal burns with a bright white flame, and throws up an abundance of white flakes, the preparation of which, for the separation of any adherent unchanged metallic particles, is particularly directed. This oxyd consists of zinc 80, oxygen 20. It is tasteless and insoluble in water.

ZINCI SULPHAS.

SULPHATE OF ZINC.

Zincum vitriolatum, P. L. 1787. Sal vitrioli, P. L. 1745.
P. L. 1720.

Take of Zinc, broken into small pieces,
three ounces.

Sulphuric acid, by weight, five
ounces.

Water, four pints.

Mix them in a glass vessel, and when the effervescence is over, filter the solution through paper; then boil it away until a

pellicle begins to form upon the surface, and set it aside that crystals may form.

This salt is now for the first time directed to be prepared ; in the former Pharmacopœia, the ordinary salt of commerce was merely purified by solution and crystallization. That salt is never pure, but contains iron, copper, and a little lead, all of which may however be separated by a piece of metallic zinc immersed in the solution, which, by its stronger affinity to sulphuric acid, will dislodge these other metals. It has upon the whole, however, been judged to be more advantageous and certain, and not so much more expensive as to be an object of importance on that account, to direct the mode of its preparation. Perhaps the best method to procure the metal, which possesses some malleability, in pieces small enough to be easily acted upon by the acid, is, to divide the zinc by pouring it when melted into water. Sulphate of zinc crystallizes by evaporation in four-sided prisms terminated by four-sided pyramids. It is of a transparent white colour, with a strong metallic astringent taste. It dissolves in two and a half parts of water at 60°, and in much less of boiling water. It is not soluble in alcohol. It consists of oxyd 20, acid 40, water 40, and if exposed to air loses a small portion of the latter and rather effloresces. Some chemists have lately considered it as a supersulphate.

VEGETABILIA.

VEGETABLES.

VEGETABLES are to be collected, from the places and soil where they grow spontaneously, in dry weather, when they are neither wet from rain nor dew. They must be collected annually, and if they have been kept for a longer period, be thrown away as unfit for use.

Roots are generally to be dug up before the stems or leaves are put forth.

Barks ought to be collected at that season when they are most easily separable from the wood.

Leaves are to be gathered after the expansion of the flowers, and before the maturation of the seeds.

Flowers are to be gathered as soon as they are blown.

Seeds are to be collected as soon as they are ripe, and before they begin to fall spontaneously from the plant. They should be kept in their own proper seed vessels.

VEGETABILIMUM PRÆPARATIO.

THE PREPARATION OF VEGETABLES.

Vegetables, soon after they are gathered, excepting those which are to be used fresh, should be thinly spread, and dried as quickly as possible in a gentle heat, so that their colour may be preserved unchanged. Afterwards keep them in drawers or convenient vessels, excluded entirely from light and moisture.

Lay up those roots, which we have directed to be kept fresh, in dry sand. Cut the *Squill* root, before it is dried, into transverse slices, previously peeling off the dry external coats.

Expose the *Pulpy Fruits* if they be unripe, or ripe and at the same time dry, in a moist place, that they may get soft; then press the pulp through a hair sieve, afterwards boil it over a gentle fire, frequently stirring it, and lastly, evaporate the water by a water bath until the pulp has acquired a proper consistence.

Upon the bruised *Pods* of *Cassia*, pour boiling water, so that the pulp may be washed out; press this first through a sieve with large

apertures, and afterwards through a hair one; then evaporate the water by a water bath until the pulp acquires a proper consistence.

Where the fruits are ripe and fresh, press the pulp or juice through a sieve without boiling.

The collection of vegetables, in general, is not the immediate province of the apothecary; but with respect to indigenous plants, the direction of circumstances relative to their periods of perfection, modes of preservations and botanical characters, comes under his superintendence; and of these he must be able to judge when they are offered to him by collectors. A fuller statement is therefore introduced than was formerly given, and it is much to be wished that an attention to it was extended to those of our colonies abroad, which furnish articles of *Materia Medica*, as there is reason to hope that the supply of our markets would then be more uniform in quality than it is at present. It is necessary that vegetable matters should be dried as quickly as possible, provided the heat applied be not so great as to destroy their colour, and for which purpose exposure to a temperature of 100° is fully sufficient; it is best applied by the artificial heat of stoves, or a heated room, in which the influence of light is avoided. For the same reasons their continuance in heaps either before or when drying, is to be avoided, because those which are moist and of soft texture, as leaves and herbs, soon run into fermentation, especially in warm weather, as is very commonly seen in the parcels of *Conium* which are brought from the neighbouring country to London. The rejection

of those vegetable matters which have been kept longer than a year, is intended to guard against the probability of destruction by insects, as well as the necessary loss of the more volatile parts of plants. When parts of plants are dried, although they are ultimately to be used in powder, it is better that they be kept whole, and in small quantities, and powdered as occasion requires; coated or green glass bottles which preclude the agency of light, and stopped close, so as to prevent the accession of moisture, answer practically to a great degree of perfection. The *Squill root*, after it is dried, ought to be friable, and still to retain its original characters of bitterness and acrimony. The preparation of the *Cassia pulp* remains as before; and there is this advantage in not boiling it, as is sometimes done, that when it is boiled, the mucilage of the seeds is also dissolved and intermixed with the pulp.

GUMMI-RESINÆ.

GUM-RESINS.

Separate *Opium* most carefully from any extraneous substances, especially those which adhere to it externally. Keep *Opium* in a soft state, fit to form pills; and in a *hard* one, which latter is effected by drying it in the heat of a water-bath, so that it may be reduced to powder.

Those *Gum-resins* are to be preferred, which can be chosen in such a state of purity as to require no further purification. If,

however, they appear to be impure, boil them in water until they soften, and press them through a hempen cloth; then set them by, that the resinous part may subside. Pour off and evaporate the supernatant solution by a water bath, and towards the end of the inspissation mix intimately the resinous part with the gummy.

The *Gum-resins*, which melt easily, may be purified by putting them into an ox bladder and holding them in boiling water, until they become soft enough to be separated from their impurities by pressure through a hempen cloth.

Dissolve *Storax Balsam* in rectified spirit, and strain the solution: then distil over the spirit in a gentle heat until the balsam has acquired a proper consistence.

Greater stress is now laid than heretofore upon the careful selection and purity of the gum-resins, and that they be obtained in such a state as to require no artificial process for their purification, excepting, indeed, those which are to be applied to the coarser purpose of external use, and, for this reason, the strained articles will be found to be directed to be employed in making plasters, &c. A bladder is mentioned for straining the *Galbanum*, but when the quantity to be pre-

pared is large, a canvas bag is preferable. With Opium these observations become more particularly necessary, because it is intended to be used in its crude state, without any previous preparation, by solution in rectified spirit and evaporation, as in the former *Opium purificatum*.

OLEA EXPRESSA.

EXPRESSED OILS.



OLEUM AMYGDALÆ.

OIL OF ALMONDS.

Oleum amygdalæ, P. L. 1787. Oleum amygdalarum, P. L. 1745. Oleum amygdalarum dulcium et amararum, P. L. 1720.

MACERATE either sweet or bitter Almonds in cold Water for twelve hours, and bruise them; then express the oil without any application of heat.

Three fixed oils are here directed to be prepared by expression, and another, Olive Oil, is kept as an article of *Materia Medica*. Their general characters are liquidity in moderate temperatures, unctuousity, freedom from smell and taste if fresh and pure, and combustibility. They are lighter than water, and insoluble in water or alcohol. They readily unite with alkalies forming soaps; they do not boil until they have attained a temperature of about 600°; if exposed to oxygen gas, or common air, they combine with oxygen, and

gradually become more dense and viscid. Some of them, as linseed oil, retain their transparency, and are called drying oils; others becoming opaque, as almond oil, are called fat oils. One general circumstance guarded against in the preparation of these oils for medical purposes, is the application of heat, by which a larger quantity of oil may indeed be obtained, but after which it is more apt to become rancid; hence the stress which is laid upon what is called *cold-drawing*. They are all more frequently prepared upon the great scale by manufacturers, than for the sole use of apothecaries, and therefore require more attention to their purity and characters.

Almond oil is the same whether obtained from the bitter or sweet variety, none of the peculiar principle contained in the former being soluble in oil, or passing through with it, nor does the quality of the oil appear in fact to be influenced by the presence of the external coat. For medical use however the sweet almond is commonly preferred. It is of so much consequence in every part of the process to avoid increased temperature, that the longer immersion of the almonds in cold water for the separation of the external coat which has been judged proper is preferable to the more immediate effect, which is produced by their immersion in hot. It is indeed a disadvantage, that under any of its ordinary modes of preparation few oils turn rancid so soon as this, and if a proper supply of any less exceptionable one could be procured easily, it might be substituted with advantage. The expressed oil of the hazel-nut (*corylus avellana*), has been strongly recommended in this point of view by an eminent practical chemist.

OLEUM LINI.

LINSEED OIL.

Oleum e seminibus lini, P. L. 1787. Oleum lini, P. L. 1745.

Bruise common Linseed; then express the oil without any application of heat.

OLEUM RICINI.

CASTOR OIL.

Oleum e seminibus ricini, P. L. 1787.

Bruise Castor Seeds, previously deprived of their external coat; then express the oil without any application of heat.

With respect to castor oil, the College has conceded to general convenience and practice in allowing the use of it as an *imported* article, as well as directing its expression from the seeds in this country, which is done by very few apothecaries. When it can be obtained, the oil so prepared, which is milder in its taste, and equally or more active in its purgative effects, is to be preferred; and if the imported article be used, it ought to be selected as free from acrimony and rancidity as possible.

OLEA DISTILLATA.

DISTILLED OILS.

OLEUM ANISI.

OIL OF ANISE.

Oleum essenziale anisi, P. L. 1787.

Oleum e seminibus anisi, P. L. 1745.

OLEUM ANTHEMIDIS.

OIL OF CHAMOMILE.

Oleum e floribus chamameli, P. L. 1745.

Oleum chamamalinum, P. L. 1720.

OLEUM CARUI.

OIL OF CARRAWAY.

Oleum essenziale carui, P. L. 1787.

Oleum essenziale e seminibus carui, P. L. 1745.

OLEUM JUNIPERI.

OIL OF JUNIPER.

Oleum essenziale juniperi baccæ, P. L. 1787.

Oleum essenziale e baccis juniperi, P. L. 1745. P. L. 1720.

OLEUM LAVANDULÆ.

OIL OF LAVENDER.

Oleum essentielle lavendulæ, P. L. 1787.

Oleum essentielle e floribus Lavendulæ, P. L. 1745.

OLEUM MENTHÆ PIPERITÆ.

OIL OF PEPPERMINT.

Oleum essentielle menthæ piperitidis, P. L. 1787.

Oleum essentielle e foliis menthæ piperitidis, P. L. 1745.

OLEUM MENTHÆ VIRIDIS.

OIL OF SPEARMINT.

Oleum essentielle menthæ sativæ, P. L. 1787.

Oleum essentielle e foliis menthæ vulgaris, P. L. 1745.

OLEUM ORIGANI.

OIL OF ORIGANUM.

Oleum essentielle origani, P. L. 1787.

Oleum essentielle e foliis origani, P. L. 1745.

OLEUM PIMENTÆ.

OIL OF PIMENTA.

OLEUM PULEGII.

OIL OF PENNYROYAL.

Oleum essentielle pulegii, P. L. 1787.

Oleum essentielle e foliis pulegii, P. L. 1747.

OLEUM ROSMARINI.

OIL OF ROSEMARY.

Oleum essentielle roris marini, P. L. 1787.

Oleum essentielle e foliis roris marini, P. L. 1745.

THE seeds of anise and carraway, the flowers of chamomile and lavender, the berries of juniper and pimenta, the tops of rosemary, and in the remaining instances the whole plants, dried, are to be employed.

Introduce any one of these substances into an alembic, and pour on as much water as will cover it, then distil the oil into a large refrigeratory.

The water which distils over with the oils of Carraway, Peppermint, Spearmint, Pimenta, and Pennyroyal, is to be kept for use.

These oils are also called Volatile Oils, and Essential Oils, and are prepared from different parts of different plants, of

which they retain, in every instance, the characteristic odour, but not always the taste; for the oil of pepper is not pungent, nor that of wormwood bitter. Several are imported from warm climates, where they are produced in greater perfection, and therefore stand in the catalogue of *Materia Medica*; others, forming the present chapter, are usually prepared in this country, for the purposes of pharmacy, from substances which are either indigenous or imported. There are some cases in which the volatile oil may be obtained by expression, as from the rind of lemons and oranges; but all those which are directed under this head require the common process of distillation. The former *Pharmacopœia* added as much water as would prevent empyreuma; in the present, as much as will cover the vegetable employed is ordered, which is the same thing in effect. These oils rise with a heat of 212° , the water is therefore to be quickly made to boil; they are condensed in the worm of the refrigeratory, and are afterwards separated most conveniently from the water with which they pass over by an Italian receiver, or by means of a separating funnel, the stem of which is stopped by the finger, and when this is removed, the heavier inferior water is allowed to escape, and by replacing it, the lighter superior oil is retained. As some oils are more volatile than others, and do not require the vegetable from which they are extracted to be boiled in the water, means have been contrived for suspending them in a basket in the still head, and thus exposing them to a current of steam, with improvement of their odour; such are the oils of lavender and rosemary. Volatile oils are combustible, soluble in alcohol, and sparingly so in water, and uniformly miscible with each other and with fixed oils. There are no articles in the shops subject to more adulteration: if they be mixed with fixed oils, it will be discovered by the greasy stain which remains on paper when the fixed oil is

heated, while the volatile oil evaporates entirely without leaving any : if with oil of turpentine, the smell will discover it when rubbed between the fingers: if with alcohol, water will be immediately rendered milky by them: if with each other, and the cheaper are thus substituted for the more expensive, it can only be discovered by an acquaintance with their sensible qualities. The water which passes over is the same with water distilled from the plant, and is directed to be kept for use as such where the same distilled water is employed pharmaceutically; in the case where no distilled water of the plant is kept, it may still, as being saturated with the oil, be advantageously employed in repetitions of the same process. If these oils be exposed to light, they become darker coloured; and if to air, they unite with its oxygen and thicken. Care must be taken to clean the still and worm which have been used for distilling one oil before they are used for the preparation of another.

OLEUM SUCCINI.

OIL OF AMBER.

Oleum succini rectificatum, P. L. 1787. Oleum succini.
P. L. 1745. P. L. 1720.

Introduce the Amber into an alembic, so that there may distil over, from a sand bath, with a fire gradually raised, the acid liquor, the oil, and a salt impregnated with oil; then repeat the distillation of the Oil twice.

Amber is decomposed if it be exposed to a red heat; succinic acid in solution arises, a quantity of the same acid

sublimes and collects in the neck of the retort, and there also passes over a brown-coloured oil, which becomes darker as the process advances, and has a bituminous unpleasant smell and acrid taste. It is necessary that the heat should be cautiously applied, and kept very low at first, not higher, that is, than 212° , until the water and a small portion of thin oil have come over, after which it may be slowly increased; this management is necessary, because if the fire be urged too hastily at first, the amber will rise without decomposition. An iron or earthenware retort is, as Gottling states, to be preferred to a glass one. The products are to a considerable degree contaminated by each other, more especially the concrete acid, which is mixed with and coloured by the oil; and when in the former Pharmacopœia it was retained under the name of Sal Succini, its purification was directed in a particular process and was difficultly effected. This concrete acid is now omitted, both as being very rarely used, and as appearing to possess no powers which would justify its retention. The oil is rendered lighter coloured, and less foetid, by the two following distillations.

OLEUM TEREBINTHINÆ RECTIFICATUM.

RECTIFIED OIL OF TURPENTINE.

Oleum terebinthinæ rectificatum, P. L. 1787. Oleum terebinthinæ æthereum, P. L. 1745. Oleum sive Spiritus terebinthinæ, sive, ut vulgo dicitur, Oleum spicæ, P. L. 1720.

Take of Oil of Turpentine, a pint.

Water, four pints.

Distil over the Oil.

If turpentine be exposed to heat, a limpid volatile oil, with a hot pungent taste, and peculiar smell, arises, and common yellow resin remains behind. The boiling point of this oil is 560° , and it is purified for medical use by a second distillation, in which process great caution is necessary, on account of the volatility and inflammability of the oil; when thus prepared, it has been called Spirit of turpentine, and does not appear materially to differ from the common preparation, but a thicker residuary matter, called Balsam of turpentine, in this case remains in the still. It is difficultly and sparingly soluble in alcohol. In the former Pharmacopœia, the preparation of the oil immediately from the turpentine was inserted; at present both it and the yellow resin are taken as prepared by manufacturers, and its re-distillation is directed to purify it for the purposes of internal exhibition.

AQUÆ DISTILLATÆ.

DISTILLED WATERS.

Waters are to be distilled from dried plants, unless it be otherwise directed, because they cannot be obtained fresh, at all times of the year. When fresh plants are employed, the quantities here directed must be doubled.

To every gallon of these waters add five fluidounces of proof spirit, for the purpose of preserving them.

All these waters are impregnated with a certain quantity of the essential oils of the plants from which they are distilled, and therefore resemble the water which passes over from the same plants in the collection of their essential oils. Here, however, a larger proportion of water is used; and the common still and worm tub are also the instruments by which they may be prepared. Dried plants are preferred generally for their preparation, and when fresh ones are used, allowance is to be made for the quantity of water they contain and which is lost by drying; this is estimated generally at about half their weight, and a double proportion of such is directed in order to give the same impregnation of oil to a given quantity of water. As some portion of mucilage, or other constituent part of the plant, is generally carried over with the oil, these waters are apt to become ropy and spoil; and to prevent this, a small quantity of spirit is added. This

mode of preparation has been retained, and considered as preferable to, and more grateful than, the extemporaneous preparation of such waters, by admixture of a few drops of the essential oil with water and shaking them together, or adding what have been called *essences* to water, at the time the particular impregnation is wanted. Such essences are prepared by the union of alkohol with the essential oils.

AQUA DISTILLATA.

DISTILLED WATER.

Aqua distillata, P. L. 1787.

TAKE of common Water, ten gallons.

First distil four pints, which are to be thrown away, then distil four gallons. This distilled water is to be kept in glass vessels.

The purification of common water by distillation was, in the last Pharmacopœia, insisted upon for almost all the uses of Pharmacy; it is now applied only for those nicer purposes to which it seems absolutely necessary, in the hope that its limited application may be more strictly attended to than was its former general one. It has not been by any means a confined idea, that common water, if boiled and filtered, is equal for every purpose to distilled water, and is also equally pure; it may not, therefore, be superfluous here to urge, that boiling gets rid of no salts from water, but those which are

dissolved therein by the medium of carbonic acid, which, if it be present at all, is driven off by the heat applied, and the substances which were dissolved by it (chiefly carbonate of lime) precipitate accordingly. From dissolved extraneous matters very few natural waters are free; they may however and do differ in their quantity and quality in different instances, and of course their application may be more or less improper for the solution of other salts, when directed for medical use; the tests therefore of the presence of such substances will vary, and can only be applied from a general chemical knowledge of their effects. The more delicate of these must be employed with some degree of caution, for water which is distilled in the common way will often carry over some extraneous matter in its spray, and thus after the process, contain enough of the original impregnation to be sensible to a delicate test.

AQUA ANETHI.

DILL WATER.

Aqua anethi, P. L. 1787. Aqua seminum anethi, P. L. 1745.

Take of Dill Seeds bruised, a pound.

Pour thereon so much water, that, after the distillation, a sufficiency may remain to prevent empyreuma. Distil over one gallon.

AQUA CARUI.

CARRAWAY WATER.

Aqua seminum carui, P. L. 1745.

Take of Carraway Seeds bruised, a pound.

Pour thereon so much water, that, after the distillation, a sufficiency may remain to prevent empyreuma; distil over one gallon.

This is the only new water introduced into the present list, and is a very grateful and useful addition to it.

AQUA CINNAMOMI.

CINNAMON WATER.

Aqua cinnamomi, P. L. 1787. Aqua cinnamomi simplex, P. L. 1745. Aqua cinnamomi tenuis, P. L. 1720.

Take of Cinnamon Bark bruised, a pound.

Water, a pint.

Macerate the bark in the water for twenty-four hours; then add so much more water, that, after the distillation, a sufficiency may remain to prevent empyreuma; distil over a gallon.

More oil always passes over with this water, as it does occasionally with some of the others, than can be actually dissolved in it; its transparency is therefore injured, and, if properly prepared, it should be rather milky.

AQUA FŒNICULI.

FENNEL WATER.

Aqua fœniculi, P. L. 1787. P. L. 1745.

Take of Fennel Seeds bruised, a pound.

Pour thereon so much water, that, after the distillation, a sufficiency may remain to prevent empyreuma; distil over a gallon.

AQUA MENTHÆ PIPERITÆ.

PEPPERMINT WATER.

Aqua menthæ piperitidis, P. L. 1787. Aqua menthæ piperitidis simplex, P. L. 1745.

Take of Peppermint, a pound and half.

Pour thereon so much water, that, after the distillation, a sufficiency may remain to prevent empyreuma; distil over a gallon.

AQUA MENTHÆ VIRIDIS.

SPEARMINT WATER.

Aqua menthæ sativæ simplex, P. L. 1787. Aqua menthæ vulgaris simplex, P. L. 1745.

Take of Spearmint, a pound and half.

Pour thereon so much water, that, after the distillation, a sufficiency may remain to prevent empyreuma; distil over a gallon.

AQUA PIMENTÆ.

PIMENTA WATER.

Aqua pimento, P. L. 1787. Aqua piperis Jamaicensis, P. L. 1745.

Take of Pimenta bruised, half a pound.

Macerate the spice in water for twenty-four hours; then add so much more water, that, after the distillation, a sufficiency may remain to prevent empyreuma; distil over a gallon.

AQUA PULEGII.

PENNYROYAL WATER.

Aqua pulegii, P. L. 1787. Aqua pulegii simplex, P. L. 1745.

Take of Pennyroyal, a pound and half.

Pour thereon so much water, that, after the distillation, there may remain a sufficiency to prevent empyreuma; distil over a gallon.

AQUA ROSÆ.

ROSE WATER.

Aqua rosæ, P. L. 1787. Aqua rosarum damascenarum, P. L. 1745.

Take of Damask Rose Petals fresh, eight pounds.

Pour thereon so much water, that, after the distillation, there may remain a sufficiency to prevent empyreuma; distil over a gallon.

An increase in the former quantity of petals used for a gallon of water is made, both as improving the odour, and appearing, from experience, to keep better. Some chemists are said to preserve the rose leaves in salt, and to distil rose-water therefrom at any time of the year.

DECOCTA.

DECOCTIONS.

IT is one of the objects of Pharmacy to separate from the various constituent parts of vegetable and sometimes of animal matters, those in which their medical powers reside, by the agency of appropriate solvents. Upon the characters of these component parts it is not our present purpose to enlarge, but only to consider them in their relation to the solvent employed, and the circumstances under which they are placed. Of the substance itself, it is only necessary here to state, that a certain degree of division facilitates the agency of every solvent necessary, the minuteness of such division being variable with different substances, as bruising, slicing, powdering, &c. The first solvent used is water, and in the present chapter its agency is increased by keeping up for a certain period the boiling temperature of 212° , which should be done throughout the appointed time moderately and equably, like what in common language is called *simmering*. If the matters to be dissolved are volatile at 212° , this mode of preparation is improper; and in some of the compound decoctions, the relative volatility of the ingredients is attended to in the addition of some parts thereof, which is made at the end of the operation only. The time of its continuance, which is necessary to each article, can only be founded on experience; but it requires particular attention, for in some instances the exposure of the vegetable matter to a high temperature, and especially in contact with atmospheric

air, produces an alteration in its composition, and, in fact, renders it insoluble, so that a longer continuation of the process diminishes rather than increases the strength of the solution. As the solvent power of the water is increased by heat, so in most instances does this saturated hot solution deposit some part of its contents and become turbid as it cools; its separation from the insoluble parts is, therefore, to be made by straining whilst it is still hot, and is best done, generally speaking, by squeezing the solution through a coarse linen cloth; but in many instances where the decoction is loaded with mucilage, and the separation of gross particles is all that is necessary, a common strainer is sufficient. In the intimate connection which exists between the several parts of vegetables, it often happens that the solution of one is attended by a suspension in a minutely divided state of another, which is, in fact, itself insoluble in the solvent employed; and this principle is also applied in the preparation of some decoctions. The aqueous solutions of vegetable matters are apt to decompose if they be long kept; hence, they should not generally be made in large quantities at once, but rather be considered as objects of extemporaneous preparation, introduced into the Pharmacopœia for the purpose of convenience, and of avoiding, in articles of general use, the constant repetition of those directions which would otherwise be necessary in every prescription.

DECOCTUM ALOËS COMPOSITUM.

COMPOUND DECOCTION OF ALOËS.

Take of Extract of Liquorice, half an ounce.

Subcarbonate of Potass, two scruples.

Extract of spiked Aloës powdered,

Myrrh powdered,

Saffron stigmata, of each a drachm.

Water, a pint.

Boil down to twelve fluidounces and strain; then add

Compound Tincture of Cardamoms, four fluidounces.

This decoction, now first introduced, is analogous to an article in very frequent popular use, under the name of *Beaume de Vie*. By the proportion of tincture which is added it will be kept unchanged for any length of time.

DECOCTUM CINCHONÆ.

DECOCTION OF CINCHONA.

Decoctum cinchonæ, P. L. 1787.

Take of lance-leaved Cinchona Bark
bruised, an ounce.

Water, a pint.

Boil for ten minutes in a vessel slightly covered, and strain the decoction while hot.

According to the option of the Practitioner, the bark of either of the other species of Cinchona, the cordifolia, or *yellow*; or the oblongifolia, or *red*; may be substituted for the lancifolia, or *quilled*; which is here directed. In the former directions, three more ounces of water were added, in order to provide for the loss by evaporation, and to yield one clear pint of decoction; but this provision has been deemed unnecessary. The use of bruised, or coarsely divided, instead of the powdered, or finely divided, bark, is practically advantageous, on account of its less price and the greater certainty of its quality, and it is at the same time fully sufficient for the purpose required.

DECOCTUM CYDONIÆ.

DECOCTION OF QUINCE SEEDS.

Mucilago seminis cydonii mali, P. L. 1787. *Mucilago seminum cydonionum*, P. L. 1745.

Take of Quince Seeds, two drachms.

Water, a pint.

Boil over a gentle fire for ten minutes, and then strain.

This decoction has been removed from among the mucilages, as being less dense than either of the others, and as being employed in larger doses like other mucilaginous decoctions. In addition to gum, it contains other constituent parts of the seeds, and is, therefore, more apt to spoil than common mucilage, over which it possesses no other advantages, than that it is more grateful, and is sufficiently thin, without farther dilution, to form the bulk of any liquid medicine.

DECOCTUM DULCAMARÆ.

DECOCTION OF WOODY NIGHTSHADE.

Take of Woody Nightshade Stalks sliced,
an ounce.

Water, a pint and half.

Boil down to a pint, and strain.

DECOCTUM HORDEI.

DECOCTION OF BARLEY.

Decoctum hordei, P. L. 1787. Aqua hordeata, P. L. 1745.

Take of Pearl Barley, two ounces.

Water, four pints and a half.

First wash away any adhering extraneous substances with cold water, next, having poured upon the barley half a pint of water, boil for a few minutes. Let this water be thrown away, and add the remainder of the water boiling; then boil down to two pints, and strain.

The directions for this and the following compound Decoction may seem rather to belong to the nurse than the apothecary. Its preparation, however, is matter of no small importance, as those well know who are in the habit of seeing it in the chambers of the sick; and it is sometimes used also as vehicle for other active medicinal substances.

DECOCTUM HORDEI COMPOSITUM.

COMPOUND DECOCTION OF BARLEY.

Decoctum hordei compositum, P. L. 1787. Decoctum pectorale, P. L. 1745. P. L. 1720.

Take of Decoction of Barley, two pints.

Figs sliced, two ounces.

Liquorice Root sliced and bruised,
half an ounce.

Raisins stoned, two ounces.

Water, a pint.

Boil down to two pints, and strain.

The utility or necessity of stoning the raisins has been doubted, but at any rate it assists the exposure of the interior part of the fruit, which would otherwise be defended by the skin from the action of the water.

DECOCTUM LICHENIS.

DECOCTION OF LIVERWORT.

Take of Liverwort, an ounce.

Water, a pint and half.

Boil down to a pint, and strain.

DECOCTUM MALVÆ COMPOSITUM.

COMPOUND DECOCTION OF MALLOW.

Decoctum pro enemate, P. L. 1787. *Decoctum commune pro clystere*, P. L. 1745. P. L. 1720.

Take of Mallow dried, an ounce.

Chamomile Flowers dried, half an ounce.

Water, a pint.

Boil for a quarter of an hour, and strain.

The impregnation of water from various herbs for the purpose of clysters and fomentations has very generally prevailed; and two formulæ applicable to these purposes were directed in the last Pharmacopœia; this is substituted for the *Decoctum pro enemate*, and may answer either purpose.

DECOCTUM PAPAVERIS.

DECOCTION OF POPPY.

Decoctum pro fomento, P. L. 1787. *Fotus communis*, P. L. 1745.

Take of White Poppy Capsules bruised, four ounces.

Water, four pints.

Boil for a quarter of an hour, and strain.

For various purposes, especially fomentations, advantage is derived from the solution of the narcotic matter contained in poppy heads; this may therefore be considered as a useful addition, and as reducing to form a direction in very common use.

DECOCTUM QUERCUS.

DECOCTION OF OAK BARK.

Take of Oak Bark, an ounce.

Water, two pints.

Boil down to a pint, and strain.

This astringent decoction is chiefly used for external applications.

DECOCTUM SARSAPARILLÆ.

DECOCTION OF SARSAPARILLA.

Decoctum sarsaparillæ, P. L. 1787.

Take of Sarsaparilla Root sliced, four ounces.

Boiling Water, four pints.

Macerate for four hours, in a vessel lightly covered, near the fire; then take out the sarsaparilla and bruise it. After it is bruised

put it again into the liquor, and macerate it in a similar manner for two hours more; then boil it down to two pints, and strain.

The directions for this and the following formula are varied from those of the former Pharmacopœia, by omitting the precise temperature of 195°, which was there defined, and substituting the more practical and convenient digestion upon the side of a fire in an ordinary stove.

DECOCTUM SARSAPARILLÆ COMPOSITUM.

COMPOUND DECOCTION OF SARSAPARILLA.

Decoctum sarsaparillæ compositum, P. L. 1787.

Take of Decoction of Sarsaparilla boiling,
four pints.

Sassafras Root sliced,

Guaiacum Wood Shavings,

Liquorice Root bruised, of each
an ounce.

Mezereon Root Bark, three
drachms.

Boil for a quarter of an hour, and strain.

DECOCTUM SENEGÆ.

DECOCTION OF SENEGA.

Take of Senega Root, an ounce.

Water, two pints.

Boil down to a pint, and strain.

This is now first introduced as being a useful medicine, especially in affections of the lungs, attended with debility, and inordinate secretion.

DECOCTUM ULMI.

DECOCTION OF ELM BARK.

Decoctum ulmi, P. L. 1787.

Take of fresh Elm Bark bruised, four ounces.

Water, four pints.

Boil down to two pints, and strain.

DECOCTUM VERATRI.

DECOCTION OF WHITE HELLEBORE.

Decoctum hellebori albi, P. L. 1787.

Take of White Hellebore Root powdered,
an ounce.

Water, two pints.

Rectified Spirit, two fluidounces.

Boil the hellebore root in the water down to a pint, and strain the decoction; then after it has cooled, add the spirit.

I N F U S A.

INFUSIONS.



WATER may farther be employed for the purpose of extracting certain parts of vegetables, without any continuation of its boiling temperature, by heat applied. This mode is called infusion, and expresses, in the language of Pharmacy, an affusion of boiling water upon any substance, and allowing it to stand thereon for a certain time. Water is also occasionally affused *cold* in the same manner; and when it is, the specific term of cold infusion is expressed. It is applicable to those substances which contain any parts volatile in the heat of 212, to the separation of more readily soluble constituent parts from those which are less so, and to the preparation of slighter impregnations than boiling for a length of time produces. The boiling temperature of the water is so soon lost in this mode of application, that even with the most delicate substances it does no injury, and it assists in loosening the texture of the vegetable, and effecting the solution much sooner than cold water alone does. Infusions are usually matters of extemporaneous prescription, and cannot generally be kept ready prepared in the shops without spoiling; but their introduction into the Pharmacopœia will, as with Decoctions, prevent the repetition necessary for the former of these purposes, and the small quantity of half a pint directed for each will obviate the changes induced by the latter. From these circumstances of convenience, their number has been extended to most of the articles in common use, and the strength of each is accommodated to the most usual standards of practice.

INFUSUM ANTHEMIDIS.

INFUSION OF CHAMOMILE.

Take of Chamomile Flowers, two drachms.

Boiling Water, a pint.

Macerate for ten minutes in a covered vessel, and strain.

INFUSUM ARMORACIÆ
COMPOSITUM.

COMPOUND INFUSION OF HORSE-RADISH.

Take of fresh Horse-Radish Root sliced,

Mustard Seeds bruised, of each
an ounce.

Boiling Water, a pint.

Macerate for two hours in a covered vessel,
and strain; then add

Compound Spirit of Horse-Radish,
a fluidounce.

INFUSUM AURANTII COMPOSITUM.

COMPOUND INFUSION OF ORANGE-PEEL.

Take of Orange-peel dried, two drachms.

Lemon-peel fresh, a drachm.

Cloves bruised, half a drachm.

Boiling Water, half a pint.

Macerate for a quarter of an hour in a covered vessel, and strain.

INFUSUM CALUMBÆ.

INFUSION OF CALUMBA.

Take of Calumba Root sliced, a drachm.

Boiling Water, half a pint.

Macerate for two hours in a covered vessel, and strain.

INFUSUM CARYOPHYLLORUM.

INFUSION OF CLOVES.

Take of Cloves bruised, a drachm.

Boiling Water, half a pint.

Macerate for two hours in a covered vessel, and strain.

INFUSUM CASCARILLÆ.

INFUSION OF CASCARILLA.

Take of Cascarilla Bark bruised, half an ounce.

Boiling Water, half a pint.

Macerate for two hours in a covered vessel, and strain.

INFUSUM CATECHU.

INFUSION OF CATECHU.

Take of Extract of Catechu, two drachms and a half.

Cinnamon Bark bruised, half a drachm.

Boiling Water, half a pint.

Macerate for an hour in a covered vessel, and strain.

INFUSUM CINCHONÆ.

INFUSION OF CINCHONA.

Take of Lance-leaved Cinchona Bark,
half an ounce.

Boiling Water, half a pint.

Macerate for two hours in a covered vessel, and strain.

INFUSUM CUSPARIÆ.

INFUSION OF CUSPARIA.

Take of Cusparia Bark bruised, two
drachms.

Boiling Water, half a pint.

Macerate for two hours in a covered vessel, and strain.

INFUSUM DIGITALIS.

INFUSION OF FOX-GLOVE.

Take of Purple Fox-glove leaves, dried
and powdered, a drachm.

Boiling Water, half a pint.

Macerate for four hours in a covered vessel, and strain ; then add

Spirit of Cinnamon, half a fluid-ounce.

INFUSUM GENTIANÆ
COMPOSITUM.

COMPOUND INFUSION OF GENTIAN.

Infusum Gentianæ compositum, P. L. 1787. *Infusum amarum simplex*, P. L. 1745. P. L. 1720.

Take of Gentian Root sliced,
Orange Peel dried, of each a
drachm.

Lemon Peel fresh, two drachms.

Boiling Water, twelve ounces.

Macerate for an hour in a covered vessel,
and strain.

INFUSUM LINI.

INFUSION OF LINSEED.

Take of Linseed bruised, an ounce.

Liquorice Root sliced, half an ounce.

Boiling Water, two pints.

Macerate for four hours near the fire, in a covered vessel, and strain.

INFUSUM QUASSIÆ.

INFUSION OF QUASSIA.

Take of Quassia Wood sliced, a scruple.

Boiling Water, half a pint.

Macerate for two hours in a covered vessel, and strain.

INFUSUM RHEI.

INFUSION OF RHUBARB.

Take of Rhubarb Root sliced, a drachm.

Boiling Water, half a pint.

Macerate for two hours in a covered vessel, and strain.

INFUSUM ROSÆ.

INFUSION OF ROSES.

Infusum Rosæ, P. L. 1787. *Tinctura Rosarum*, P. L. 1745.

Tinctura Rosarum rubrarum, P. L. 1720.

Take of the Petals of the Red Rose dried,
half an ounce.

Boiling Water, two pints and a
half.

Dilute Sulphuric Acid, three
fluidrachms.

Double refined Sugar, an ounce
and a half.

Pour the water upon the petals of the rose
in a covered glass vessel; then add the acid,
and macerate for half an hour. Lastly,
strain the infusion, and add the sugar to it.

INFUSUM SENNÆ.

INFUSION OF SENNA.

Infusum Sennæ simplex, P. L. 1787. Infusum Sennæ commune, P. L. 1745. Infusum Sennæ, P. L. 1720.

Take of Senna Leaves, an ounce and half.
Ginger Root sliced, a drachm.
Boiling Water, a pint.

Macerate for an hour in a covered vessel,
and strain the liquor.

In the last Pharmacopœia there was also an Infusion of Senna named *Infusum Sennæ tartarizatum*, to each pint of which two drachms of Supertartrate of Potass were added: it has however been thought that the addition of this or any other salt might more conveniently be made extemporaneously, in such proportions as circumstances may require.

INFUSUM SIMAROUBÆ.

INFUSION OF SIMAROUBA.

Take of Simarouba Bark bruised, half a
drachm.
Boiling Water, half a pint.

Macerate for two hours in a covered vessel,
and strain.

INFUSUM TABACI.

INFUSION OF TOBACCO.

Take of Tobacco Leaves, a drachm.

Boiling Water, a pint.

Macerate for an hour in a covered vessel,
and strain.

This infusion is intended to be used as a clyster, to which purpose it is often directed, and it is of considerable practical importance to define its proper degree of strength by a prescription like the present.

MUCILAGINES.

MUCILAGES.

THE term Mucilage is employed in Pharmacy to designate certain aqueous solutions which are very thick and adhesive. In Chemistry, it is confined to a union of gum with water, and, by some, has been conceived rather to designate a peculiar principle distinct from gum. The former mucilage of Quince seed was much thinner than the others, and therefore has been transferred to decoctions. The mucilage of Tragacanth is omitted, because it seems to possess no advantage over that of Acacia gum, and it is more difficultly soluble, and very thick, and apt to become lumpy on dilution.

MUCILAGO ACACIÆ.

MUCILAGE OF ACACIA:

Mucilago Arabici Gummi, P. L. 1787.

Take of Acacia Gum powdered, four
ounces:

Boiling Water, half a pint.

Rub the gum with the water gradually added, until it incorporates into a mucilage.

This mucilage is prepared by simple trituration of the powdered gum with the hot water. It is useful to recollect that this gum is also soluble in vegetable acids; insoluble in alcohol, and precipitated by it; and insoluble also in ether and oils. If however it be triturated with the expressed oils either when they are naturally present as in the vegetables containing them, or are added artificially, it divides and suspends their particles in water, forming the white opaque fluid, formerly called *Emulsion*. Some of the metallic salts of mercury, iron, and antimony appear to be changed by solution of gum, and therefore should be exhibited, in mixtures containing it, with some caution. This mucilage is mostly impure when first formed, from the presence of extraneous matters which have adhered to the gum, and such require to be separated by pressing it through a coarse cloth.

MUCILAGO AMYLI.

MUCILAGE OF STARCH.

Take of Starch, three drachms.

Water, a pint.

Rub the starch, gradually adding the water to it, then boil until it incorporates into a mucilage.

Starch rubs with cold water into a white opaque fluid, and this, when heated, forms a gelatinous liquor, which may be diffused through more boiling water, but it precipitates

after standing. It is insoluble in ether or alcohol. Thomson considers it to be a characteristic of this vegetable matter, that it is soluble in infusion of galls at 120° ; precipitates as it cools, and may again be dissolved by an increase of temperature: this seems to be the result of a combination between starch and the tannin contained in the galls.

EXTRACTA.

EXTRACTS.

IN the preparation of all the extracts, evaporate the water as speedily as possible, in a broad shallow dish by means of a water bath, until they have acquired a consistence proper for making pills, and towards the end of the inspissation constantly stir them with a wooden rod,

Sprinkle upon all the softer extracts a small quantity of rectified spirit.

The generic term Extract is used pharmaceutically in an extensive sense, and comprizes all those preparations from vegetables which are separable by the agency of various liquids, and afterwards obtained from such solutions, in a solid state, by evaporation of the menstruum: it includes also those substances which are held in solution by the natural juices of fresh plants, as well as those to which some menstruum is added at the time of preparation. Now, these soluble matters are various and mostly complicated, chemical accuracy therefore is not to be looked for in the application of the term. Chemists, however, have confined this name to one peculiar modification of vegetable matter, which they have

called Extractive, or Extract, or Extractive Principle, and as this forms one of the chief constituent parts of common Extracts, and possesses certain definite characters, it will be proper to mention such of them as may influence its pharmaceutical relations. The Extractive Principle has a strong taste, differing in different plants: it is soluble in water, and its solution speedily runs into a state of putrefaction, by which it is destroyed. Repeated evaporations and solutions render it at last insoluble, in consequence of its combination with oxygen from the atmosphere during these processes. It is soluble in alcohol, but insoluble in ether. It unites with alumine, and if boiled with neutral salts thereof, precipitates them. It precipitates with strong acids, and with the oxyds from solutions of most metallic salts, especially muriate of tin. It readily unites with alkalies, and forms compounds with them which are soluble in water. No part, however, of this subject has been hitherto sufficiently examined. The general rules for the preparation of Extracts, which are given in the text, require minute and accurate attention, more particularly in the immediate evaporation of the solution, whether prepared by expression or decoction, in the manner as well as the degree of heat by which it is performed, and the promotion of it by changing the surface by constant stirring when the liquor begins to thicken, and even by directing a strong current of air over its surface, if it can conveniently be done. It is impossible to regulate this temperature over a naked fire, or if it be used to prevent the extract from burning; the use of a water bath is therefore absolutely necessary, and not to be dispensed with, and the beauty and precision of extracts so prepared will demonstrate their superiority. I have on this account not judged it superfluous, in order to enforce this strongly, and to show how it may be conducted conveniently, to give a sketch of a modification of the common tin sauce-

pan which I devised for the use of St. Bartholomew's Hospital, and which, from its simplicity and facility of application, must take away all excuse from those who have heretofore employed naked fires for this purpose. For this mode of preparation, volatile and aromatic substances are unfit, and the clarification or defæcation of the liquor is, in almost every instance, improper. A small portion of rectified spirit is added to the softer extracts to preserve them from moulding. The consistence of extracts is important; it should be such as to retain the round form of a pill without any addition of powder. They are usually too soft, and the temptation is considerable to those who prepare them for sale in a large way, not to evaporate them to the proper consistence. The omissions from the former Pharmacopœia are, *Extractum cacuminis Genistæ, Rutæ, Sabinæ, Cascarillæ, Sennæ, and Succus Baccæ Sambuci spissatus.* The additions to the present are, *Extractum Aconiti, Belladonnæ, Aloes, Colocynthis, Humuli, Hyoscyami, Opii, Rhei, Sarsaparillæ, Taraxaci*

EXTRACTUM ACONITI.

EXTRACT OF ACONITE.

Take of Aconite Leaves fresh, a pound.

Bruise them in a stone mortar, sprinkling on a little water; then press out the juice, and, without any separation of the sediment, evaporate it to a proper consistence.

This, and the Extracta *Belladonnæ, Conii, and Hyoscyami* would, in the language of the former Pharmacopœia, have

been called inspissated juices, (*Succi spissati*) and they are prepared according to one common process. The texture of the plant is first destroyed by bruising, its juice is then expressed, and reduced by evaporation to a proper consistence. Different modes of preparing these extracts have been used, all of which were considered when the present directions were adopted. Some pour off the clear liquor from the green feculent matter which subsides when the juice is heated, and evaporating it by itself, mix the two together after the liquor has acquired the consistence of syrup. Others carry on the evaporation of the whole only until it becomes of the thickness of syrup, and then give it a pilular consistence, by the addition of powder of the leaves. These extracts all possess narcotic properties, and require caution and attention in their exhibition, though upon the whole, and from tolerably large experience, I am convinced that in common practice they are under-dosed rather than the contrary, and that to this circumstance is to be ascribed their frequent failure of effect.

EXTRACTUM ALOËS.

EXTRACT OF ALOËS.

Take of Extract of Spike Aloë powdered,
half a pound.

Boiling Water, four pints.

Macerate for three days in a gentle heat, then strain the solution, and set it by that the dregs may subside. Pour off the clear

solution, and evaporate it to a proper consistence.

Water will dissolve about $\frac{7}{8}$ th of common aloë according to Neuman, and the gummy extract prepared from it purges equally well, and is less heating, and more grateful than the usual form in which it is mixed with resin. Its solution may be accelerated by previously triturating, and thus dividing the aloë with clean white sand, as is directed in the Vinum aloës.

EXTRACTUM ANTHEMIDIS.

EXTRACT OF CHAMOMILE.

Extractum Chamæmeli, P. L. 1787.

Take of Chamomile Flowers dried, a pound.

Water, a gallon.

Boil down to four pints, and strain the solution while it is hot, then evaporate it to a proper consistence.

The essential oil is volatile, and passes over in the heat employed, and only a bitter extract remains.

EXTRACTUM BELLADONNÆ.

EXTRACT OF BELLADONNA.

Take of Deadly Nightshade leaves fresh,
a pound.

Bruise them in a stone mortar, sprinkling
on a little water; then press out the juice,
and, without any separation of the sediment,
evaporate it to a proper consistence.

EXTRACTUM CINCHONÆ.

EXTRACT OF CINCHONA.

Extractum Cinchonæ & cum Resina, P. L. 1787. *Extractum*
Corticis Peruviani, P. L. 1745.

Take of Lance-leaved Cinchona Bark
bruised, a pound.
Water, a gallon.

Boil down to six pints, and strain the
boiling solution. In the same manner, for
four successive times, boil it down again
in the same quantity of water, and strain.
Lastly, mix the solutions together, and
evaporate until it has acquired a proper
consistence.

This extract should be kept in a *soft* state for forming pills, and in a *hard* one, that it may be reduced to powder.

By this process the whole effective part of bark is separated from the inert woody part, which afterwards yields nothing farther either to water or spirit. It is useless to boil the water upon the bark after it is saturated with the soluble parts and can dissolve no more, and most probably each subsequent addition of water, after the first, may require for such effect to be longer continued than the preceding one; the decoction therefore is ordered for a less time than in the last Pharmacopœia. For the chemical relations of bark, the student in Pharmacy ought to consult the analysis of the St. Domingo bark by Fourcroy, (A. C. v. 8,) and another by Vauquelin on the chemical properties of barks in general, (A. C. v. 59.) Sir John Pringle reports, from his experiments, that the extract is not of equal efficacy, quantity for quantity, with the simple powder.

EXTRACTUM CINCHONÆ RESINOSUM.

RESINOUS EXTRACT OF BARK.

Take of Lance-leaved Cinchona Bark
bruised, a pound.

Rectified Spirit, four pints.

Macerate for four days, and strain. Distil

the tincture in the heat of a water bath until the extract has acquired a proper consistence.

This is considered by many as much more grateful to the stomach, whilst at the same time it produces the effects of bark in substance, and by the distillation directed it is intended to collect and preserve the spirit which passes over.

EXTRACTUM COLOCYNTHIDIS.

EXTRACT OF COLOCYNTH.

Take of Colocynth Pulp, a pound.

Water, a gallon.

Boil down to four pints, strain the solution while it is hot, and evaporate it to a proper consistence.

Except in the general statement of the Pharmacopœia of 1720, that extracts may be prepared from any substance soluble in a menstruum, this active purgative extract, which is useful in so many and various combinations, of which indeed the commonly received compound formula scarcely admits, has never yet been admitted into the Pharmacopœia.

EXTRACTUM COLOCYNTHIDIS COMPOSITUM.

COMPOUND EXTRACT OF COLOCYNTH.

Extractum colocynthidis compositum, P. L. 1787. *Extractum catharticum*, P. L. 1745. *Pilulæ rudii*, P. L. 1720.

Take of Colocynth Pulp sliced, six drachms.

Extract of Spike Aloë powdered, an ounce and half.

Scammony Gum-resin powdered, half an ounce.

Cardamom Seeds powdered, a drachm.

Hard Soap, three drachms.

Boiling Water, two pints.

Macerate the colocynth pulp in the water for four days in a gentle heat; strain the solution, and add to it the aloë, scammony, and soap; then by means of a water bath, evaporate it to a proper consistence, constantly stirring, and, about the end of the inspissation, mix in the cardamom seeds.

As this preparation has been established through successive Pharmacopœiæ, so has it in each undergone some modi-

fication. Of the scammony used in the last, not one particle could be dissolved by digestion in the proof spirit, there directed. To the solution of the active matter of the colocynth, the other ingredients are now added in powder, and the whole is then brought down to the proper consistence of an extract. Soap has also been added, as preserving that consistence more uniformly than any other bond of union. And it should be remembered that this may militate somewhat against its combination with submuriate of mercury, or other metallic salts.

EXTRACTUM CONII.

EXTRACT OF HEMLOCK.

Succus cicutæ spissatus, P. L. 1787.

Take of fresh Hemlock Leaves, a pound.

Bruise in a stone mortar, sprinkling on a little water; then press out the juice, and, without any separation of the sediment, evaporate it to a proper consistence.

EXTRACTUM ELATERII.

EXTRACT OF ELATERIUM.

Elaterium, P. L. 1787. P. L. 1745.

Cut the ripe wild Cucumbers into slices, and pass the juice, very gently expressed,

through a very fine hair sieve into a glass vessel; then set it by for some hours until the thicker part has subsided. Pour off and throw away the thinner part which swims at the top. Dry the thicker part which remains in a gentle heat.

This substance is, in fact, not extract but fæcula which subsides from the expressed juice of the fruit, and from which the supernatant liquor is either poured off, or separated by immersion of twists of cotton hanging exteriorly, over the side of the vessel, below the level of the surface of the contained liquor, for it is too viscid to filtre through paper. It is only under the very general application of the term Extract previously mentioned that its use can be justified here. This substance appears however scarcely to be simple fæcula only, and its violent effects are probably owing to some other adherent matter; and on this principle Beaumé and some others rather prefer that it should be prepared by inspissation of the aqueous solution, than by mere collection of the fæcula which subsides from it.

EXTRACTUM GENTIANÆ.

EXTRACT OF GENTIAN.

Extractum Gentianæ, P. L. 1787.

Take of Gentian Root sliced, a pound.

Boiling Water, a gallon.

Macerate for twenty-four hours, then boil down to four pints; strain the hot liquor, and evaporate it to a proper consistence.

EXTRACTUM GLYCYRRHIZÆ.

EXTRACT OF LIQUORICE.

Extractum glycyrrhizæ, P. L. 1787. P. L. 1745.

Take of Liquorice Root sliced, a pound.

Water boiling, a gallon.

Macerate for twenty-four hours, then boil down to four pints; strain the hot liquor, and evaporate it to a proper consistence.

The large quantity of this Extract which is employed for various purposes in this country is imported from Spain, and very little is actually prepared here. From it a purer Extract is made by a repetition of the processes of solution and evaporation, and kept in the shops under the name of *Refined Liquorice*.

EXTRACTUM HÆMATOXYLI.

EXTRACT OF LOGWOOD.

Extractum hæmatoxyli, P. L. 1787. Extractum ligni campechensis, P. L. 1745.

Take of Logwood powdered, a pound.

Water boiling, a gallon.

Macerate for twenty-four hours, then boil down to four pints; strain the hot liquor, and evaporate it to a proper consistence.

Logwood is extremely hard, and in order that water may dissolve the soluble parts, it becomes necessary that the wood should be first minutely divided by some means or other; if it be bought in the state of powder, it is generally much adulterated, and the best mode of dividing it seems to be by the file. The wood, however, is of no great value, and whether the whole extractive matter be dissolved or not by the decoction here directed, is not of much consequence.

EXTRACTUM HUMULI.

EXTRACT OF HOPS.

Take of Hops, half a pound.

Water boiling, a gallon.

Boil down to four pints; strain the hot

liquor, and evaporate it to a proper consistence.

This Extract is now first introduced, as being supposed to possess both a tonic and sedative power combined.

EXTRACTUM HYOSCYAMI.

EXTRACT OF HENBANE.

Take of fresh Henbane Leaves, a pound.

Bruise them in a stone mortar, sprinkling on a little water; then press out the juice, and, without separating the fæculencies, evaporate it to a proper consistence.

EXTRACTUM JALAPÆ.

EXTRACT OF JALAP.

Extractum jalapii, P. L. 1787. P. L. 1745.

Take of Jalap Root powdered, a pound.

Rectified Spirit, four pints.

Water, ten pints.

Macerate the jalap root in the spirit for four days, and pour off the tincture; boil the

remaining powder in the water until it be reduced to two pints; then strain the tincture and decoction separately, and let the former be distilled, and the latter evaporated until each begins to grow thick. Lastly, mix the extract with the resin, and reduce it to a proper consistence.

Let this extract be kept in a *soft* state fit for forming pills, and in a *hard* one so that it may be reduced to powder.

Rather more than $\frac{5}{12}$ ths can be extracted from good jalap by this process.

EXTRACTUM OPII.

EXTRACT OF OPIUM.

Extractum thebaicum, Opium colatum, P. L. 1745.

Extractum thebaicum, P. L. 1720.

Take of Opium sliced, half a pound.

Water, three pints.

Pour a small quantity of the water upon the opium, and macerate it for twelve hours that it may become soft; then, adding the remaining water gradually, rub them together until

the mixture be complete. Set it by that the fæculencies may subside; then strain the liquor, and evaporate it to a proper consistence.

Crude opium, carefully selected, has been preferred to the former purified article for medical use. An extract analogous to the present has also been long in use; and seems to produce its sedative effect with less subsequent derangement of the nervous system than the Opium itself. It depends upon the solution of all that cold water will dissolve, and requires to be treated correctly according to the directions given; it differs from the old Opium colatum, in the preparation of which boiling water and expression through a linen cloth were used. It may be at present rather doubtful in what constituent part of the compound mass called Opium its narcotic powers especially reside. Derosne (A. C. V. 45.) considers it as depending upon a distinct principle, which he therefore calls Narcotic, but the whole subject will bear farther elucidation.

Water will dissolve of dried opium $\frac{5}{12}$.

Rectified spirit - - - - - $\frac{6}{12}$.

Proof spirit - - - - - $\frac{9}{12}$.

These solutions were assisted by heat, and afterwards suffered to cool before the Extract was separated.

A process very similar to the present was employed in the Pharmacopœia of 1720, and the opium colatum was adopted in that of 1745, as being more expeditiously prepared. It is remarkable, that the old solution was described as being intended not only to separate extraneous substances, but further to correct certain noxious qualities which were ascribed to its volatile and resinous parts, and which were by this means effectually separated.

EXTRACTUM PAPAVERIS.

EXTRACT OF WHITE POPPY.

Extractum papaveris albi, P. L. 1787.

Take of White Poppy Capsules bruised, a pound.

Water boiling, a gallon.

Macerate for twenty-four hours; then boil down to four pints, strain the hot liquor, and evaporate it to a proper consistence.

This Extract is prepared by decoction of the poppy capsules in water and subsequent inspissation; it differs therefore from opium, which is believed to be the concreted milky juice which exudes on making incisions into the fresh capsules, though probably some additions are made to it. Six grains of this Extract are about equivalent to one of opium: but much of the comparative narcotic power of the plant itself may depend upon the influence of climate. The seeds are first to be separated from the capsules, for they produce no narcotic effect, they contain oil and mucilage, and readily rub into an emulsion.

EXTRACTUM RHEI.

EXTRACT OF RHUBARB.

Take of Rhubarb Root powdered, a pound.

Proof Spirit, a pint.

Water, seven pints.

Macerate for four days in a gentle heat, then strain, and set it by that the fæculencies may subside. Pour off the clear liquor, and evaporate it to a proper consistence.

This extract retains the purgative properties of the root, and the fibrous and earthy parts are separated; it may therefore be employed alone for this purpose, but it will be found more especially useful as a basis for Pills to which other active ingredients are to be added.

EXTRACTUM SARSAPARILLÆ.

EXTRACT OF SARSAPARILLA.

Take of Sarsaparilla Root sliced, a pound.

Water, boiling, a gallon.

Macerate for twenty-four hours, then boil down to four pints; strain the hot liquor, and evaporate it to a proper consistence.

In practice this Extract has been much used, to render the common decoction of the same root stronger and more efficacious; and it is now introduced for the same purpose into the Pharmacopœia.

EXTRACTUM TARAXACI.

EXTRACT OF DANDELION.

Take of Dandelion Root fresh and bruised, a pound.

Water boiling, a gallon.

Macerate for twenty-four hours, boil down to four pints; strain the hot liquor, and evaporate it to a proper consistence.

This Extract has the confidence of many practitioners in some visceral affections, and is therefore adopted.

MISTURÆ.

MIXTURES.

MIXTURES depend upon the diffusion and suspension in any liquid of insoluble substances minutely divided, and for this purpose, it is often necessary that the liquid itself should be rendered more dense by the addition of some viscid matter, as mucilage or syrup.

MISTURA AMMONIACI.

MIXTURE OF GUM AMMONIAC.

Take of Gum Ammoniac, two drachms.

Water, half a pint.

Rub the gum ammoniac with the water gradually poured thereon, until they are perfectly mixed.

The gum-resins are diffused through water, and remain sufficiently suspended in it by trituration only.

MISTURA AMYGDALÆ.

ALMOND MIXTURE.

Lac amygdalæ, P. L. 1787. Emulsio communis, P. L. 1745.

Take of Almond Confection, two ounces.

Distilled Water, a pint.

Add the water gradually to the confection, and rub them together.

This will differ from the former *lac amygdalæ*, only by the addition of a small quantity of gum, which prevents more effectually the separation of the oil on standing; and in order to make it smooth and uniform, it is necessary to use distilled water. The present mode of preparation from the confection, is a considerable advantage in point of expedition, and has been practised in some shops for a sufficient time to establish its utility.

MISTURA ASSAFŒTIDÆ.

MIXTURE OF ASSAFŒTIDA.

Lac assafœtidæ, P. L. 1787.

Take of Assafœtida, two drachms.

Water, half a pint.

Rub the assafœtida with the water gradually poured thereon, until they are perfectly mixed.

MISTURA CAMPHORÆ.

CAMPHOR MIXTURE.

Mistura camphorata, P. L. 1787. Julepum e camphora, P. L. 1745.

Take of Camphor, half a drachm.

Rectified Spirit, ten minims.

Water, a pint.

First rub the camphor with the spirit, then with the water gradually added, and strain the liquor.

Many practitioners have been urgent that this mixture should be impregnated with a larger proportion of camphor; but as in its present state it is a grateful preparation, and combines well with other substances, of which it is a common vehicle, as too, when it is intended to give camphor in large doses for its more powerful effects, various methods of extemporaneous prescription suggest themselves; it has been determined to make very little change in the former directions. The division of the camphor by trituration, with a few drops of spirit, facilitates the solution, and the water becomes immediately and strongly impregnated with its sensible qualities. Some practitioners are in the habit of preparing it by leaving a lump of camphor in a bottle of water, and pouring it off as their use requires. Others add some viscid substance, as sugar; and this was done in the last Pharmacopœia, but has been now omitted, because with such addition the mixture

will not keep so well. Camphor dissolves perfectly in water impregnated with carbonic acid. Of water, at ordinary temperatures, one fluidounce does not dissolve more than one grain and $\frac{1}{6}$ th of camphor.

MISTURA CORNU USTI.

MIXTURE OF BURNT HARTSHORN.

Decoctum cornu cervi, P. L. 1787. Decoctum album, P. L. 1745.

Take of Hartshorn burnt and prepared,
two ounces.

Acacia Gum, an ounce.

Water, three pints.

Boil down to two pints, constantly stirring,
and strain.

Burnt hartshorn consists entirely of phosphate of lime, which is insoluble in the preparation here directed; it is only brought into the state of a very fine powder, and is kept mechanically suspended in a mucilaginous liquor, on which account, the gum is an useful addition to the original formula in Bates's Pharmacopœia, which contains none. It is retained as one of those established forms which are in use with many practitioners.

MISTURA CRETÆ.

CHALK MIXTURE.

Mistura cretacea, P. L. 1787. Julepum e creta, P. L. 1745.

Take of Prepared Chalk, half an ounce.

Refined Sugar, three drachms.

Acacia Gum powdered, half an ounce.

Water, a pint.

Mix.

MISTURA FERRI COMPOSITA.

COMPOUND MIXTURE OF IRON.

Take of Myrrh powdered, a drachm.

Subcarbonate of Potass, twenty-five grains.

Rose Water, seven ounces and a half.

Sulphate of Iron powdered, a scruple.

Spirit of Nutmeg, half a fluid-ounce.

Refined Sugar, a drachm.

Rub together the myrrh, the subcarbonate of potass, and sugar, and during the tritu-

ration, add gradually, first, the rose-water and spirit of nutmegs, and last, the sulphate of iron. Pour the mixture immediately into a proper glass bottle, and stop it close.

This celebrated and useful form of Dr. Griffiths is now introduced for the purpose of giving precise directions for its preparation, as being a compound very commonly directed. The precipitation of subcarbonate of iron takes place here, as in the directions given for that article; but that, on exposure to the air as it dries, attracts oxygen, and is converted into red oxyd; while this retains, if properly prepared, its state of black oxyd, which is diffused minutely through the dense liquor, and assisted in its general applications by the myrrh. The myrrh requires to be well dried before it can be reduced to powder.

MISTURA GUAIACI.

MIXTURE OF GUAIAACUM.

Lac guaiaci, P. L. 1787.

Take of Guaiacum Gum-resin, a drachm
and half.

Refined Sugar, two drachms.

Mucilage of Acacia Gum, two
fluidrachms.

Cinnamon Water, eight fluid-
ounces.

Rub the guaiacum with the sugar, then

with the mucilage, and when they are mixed pour on the cinnamon water gradually.

MISTURA MOSCHI.

MUSK MIXTURE.

Mistura moschata, P. L. 1787. Julepum e moscha, P. L. 1745.

Take of Musk,

Acacia Gum powdered,

Refined Sugar, of each a drachm:

Rose-water, six fluidounces.

Rub the musk first with the sugar, then with the gum, and add the rose-water by degrees.

This contains one third more of musk than the former musk mixture, and, in order to produce any very definite effect from this substance, it requires to be given in still larger doses.

SPIRITUS.

SPIRITS.

ALCOHOL.

ALCOHOL.

Alkohol, P. L. 1787.

TAKE of Rectified Spirit, a gallon.

Subcarbonate of Potass, three pounds.

Add a pound of the subcarbonate of potass, previously heated to 300 degrees, to the spirit, and macerate for 24 hours, frequently shaking the mixture; then pour off the spirit, and add to it the remainder of the subcarbonate of potass heated to the same degree, and by means of a water bath distil the alcohol, which is to be kept in a stopped bottle.

The specific gravity of alcohol is to that of distilled water, as 0,815 to 1,000.

Rectified spirit of the specific gravity of 0,815 is prepared for the purposes of trade, and easily obtained; indeed, the distillers draw their spirit still higher than this for the use of varnish-makers, and some other purposes; but the apothecary should be cautious that it is actually of the specific gravity stated, either by taking it in the usual comparison of weights of equal bulks, or by an hydrometer (of which instruments Quin's appears to me to be preferable to Clark's which is still used by the customs and excise). It is not enough that he merely orders rectified spirit from the distiller, for the same name is applied in trade to designate every thing above proof; and from a want of attention to this circumstance, it often happens that the article kept in the shops is much inferior to the standard here laid down, an inaccuracy which must be the source of abundant error in its subsequent applications. But spirit of this specific gravity still contains much water, which it is difficult, if not impossible, to separate entirely. Different chemists have considered the purity of alcohol to be attained at different specific gravities, according to the result of their own experiments; but it has never been so completely effected as by Lowitz's process (*Crell's Annals*, 1796), who brought it to 0,791, and which may be considered as pure alcohol. The standard alcohol employed in the tables drawn up by order of government (*Phil. Trans.* 1790, 1794,) was 0,825, at 60°. The present process does not go so far as Lowitz's, and if the specific gravity here directed be actually obtained, it will still, according to him, contain near 0,09 of water, at 68° F. The process depends upon the separation of the water from the alcohol, by means of the stronger affinity of the dry subcarbonate of potass to that water, and the retention of it in this way in a heat sufficient to distil over the alcohol. Other salts which strongly attract water will produce the

same effect, and by many the muriate of lime is preferred. As however the present process answers all the purposes intended by the College, it has been retained. Alcohol is transparent and colourless, it does not become solid by any known diminution of its temperature; it boils at 176° , is combustible, burning with a blue flame, and leaving no residue.

SPIRITUS AMMONIÆ.

SPIRIT OF AMMONIA.

Spiritus ammonia, P. L. 1787. *Spiritus salis ammoniaci dulcis*, P. L. 1745. *Spiritus salis ammoniaci*, P. L. 1720.

Take of Rectified Spirit, two pints.

Solution of Ammonia, a pint.

Mix.

Alcohol dissolves ammonia but not its carbonate; water dissolves both; and in the former preparation a large proportion of carbonate of ammonia sublimed over and was not dissolved by the spirit, but passed to waste. Hence it was a very uncertain preparation as to its degree of strength, and the object of the present change has been to obtain a more definite article. It is required for preparing the *Spiritus Ammoniaë aromaticus* that this should be sufficiently concentrated to dissolve the distilled oils which are there added to it. Directions very similar to the present have heretofore been given in the Berlin Pharmacopœia.

SPIRITUS AMMONIÆ AROMATICUS.

AROMATIC SPIRIT OF AMMONIA.

Spiritus ammoniæ compositus, P. L. 1787. *Spiritus volatilis aromaticus*, P. L. 1745. *Spiritus salis volatilis oleosus*, P. L. 1720.

Take of Spirit of Ammonia, two pints.

Oil of Lemons.

Oil of Cloves, of each two fluidrachms.

Mix.

This has sometimes been made by distillation of the Spirit of Ammonia from the aromatics which contain the oils, and in the old process distillation was absolutely necessary, for the spirit as there prepared would not unite with the oils by mixture alone. In other Pharmacopœiæ different essential oils have been directed to form a similar preparation.

SPIRITUS AMMONIÆ FŒTIDUS.

FETID SPIRIT OF AMMONIA.

Spiritus ammoniæ fœtidus, P. L. 1787. *Spiritus volatilis fœtidus*, P. L. 1745.

Take of Spirit of Ammonia, two pints.

Assafoetida, two ounces.

Macerate for twelve hours, then by a gen-

the fire distil a pint and half into a cooled receiver.

This only differs from the former process in employing the spirit of ammonia previously prepared, instead of adding the assafoetida to the charge of its ingredients, and distilling the spirit impregnated from them.

SPIRITUS AMMONIÆ SUCCINATUS.

SUCCINATED SPIRIT OF AMMONIA.

Spiritus ammoniæ succinatus, P. L. 1787.

Take of Mastich, three drachms.

Alcohol, nine fluidrachms.

Oil of Lavender, fourteen minims.

Oil of Amber, four minims.

Solution of Ammonia, ten fluid-ounces.

Macerate the mastich in the alcohol that it may dissolve, and pour off the clear tincture; to this add the remaining articles, and shake them together.

This is substituted for the former spirit of the same name, as preserving its milkiness unchanged for a considerable time,

and not separating into parts. At Apothecaries' Hall, it has thus been for some time prepared as their substitute for *Eau de Luce*. It may seem to be a misnomer, that an ingredient so small in its quantity as the oil of amber should form a part of the title of the preparation.

SPIRITUS ANISI.

SPIRIT OF ANISEED.

Spiritus anisi compositus, P. L. 1787. *Aqua seminum anisi composita*, P. L. 1745.

Take of Aniseed bruised, half a pound.

Proof Spirit, a gallon.

Water, sufficient to prevent empyreuma.

Macerate for twenty-four hours, and distil a gallon by a gentle fire.

It may here be observed, that spirits distilled from vegetable substances are impregnated with the volatile oil contained in such substances, and not with any other of their more fixed constituent parts. In their preparation it is to be noticed, that the different volatile parts of such a charge arise at different temperatures, the spirit before the water, and the volatile oil at various stages, either with the spirit or water, but that after distillation they form an uniform transparent mixture, which remains unchanged. The proof spirit employed ought to be pure, and its specific gravity examined before it is used.

SPIRITUS ARMORACIÆ COMPOSITUS.

COMPOUND SPIRIT OF HORSERADISH.

Spiritus raphani compositus, P. L. 1787. *Aqua raphani composita*, P. L. 1745. P. L. 1720.

Take of Horseradish Root fresh and sliced,
Dried Orange Peel, of each a
pound.

Nutmegs bruised, half an ounce.

Proof Spirit, a gallon.

Water, sufficient to prevent em-
pyreuma.

Macerate for twenty-four hours, and dis-
til a gallon by a gentle fire.

SPIRITUS CAMPHORÆ.

SPIRIT OF CAMPHOR.

Spiritus camphoratus, P. L. 1787. *Spiritus vinosus camphoratus*, P. L. 1745. *Spiritus vini camphoratus*, P. L. 1720.

Take of Camphor, four ounces.

Rectified Spirit, two pints.

Mix, that the Camphor may be dissolved.

Rectified Spirit will dissolve three-fourths of its weight of camphor (Neuman), and the camphor may be precipitated from such solution by the addition of water.

SPIRITUS CARUI.

SPIRIT OF CARRAWAY.

Spiritus carui, P. L. 1787. Aqua seminum carui, P. L. 1745.

Take of Carraway Seeds bruised, a pound and half.

Proof Spirit, a gallon.

Water, sufficient to prevent empyreuma.

Macerate for twenty-four hours, and distil a gallon by a gentle fire.

SPIRITUS CINNAMOMI.

SPIRIT OF CINNAMON.

Spiritus cinnamomi, P. L. 1787. Aqua cinnamomi spirituosus, P. L. 1745. Aqua cinnamomi fortis, P. L. 1720.

Take of Cinnamon Bark bruised, a pound.

Proof Spirit, a gallon.

Water, sufficient to prevent empyreuma.

Macerate for twenty-four hours, and distil a gallon by a gentle fire.

SPIRITUS JUNIPERI COMPOSITUS.

COMPOUND SPIRIT OF JUNIPER.

Spiritus Juniperi compositus, P. L. 1787. *Aqua juniperi composita*, P. L. 1745.

Take of Juniper Berries bruised, a pound.

Carraway Seeds bruised,

Fennel Seeds bruised, of each an ounce and half.

Proof Spirit, a gallon.

Water, sufficient to prevent empyreuma.

Macerate for twenty-four hours, and distil a gallon by a gentle fire.

SPIRITUS LAVANDULÆ.

SPIRIT OF LAVENDER.

Spiritus lavendulæ, P. L. 1787. *Spiritus lavendulæ simplex*, P. L. 1745.

Take of fresh Lavender Flowers, two pounds.

Rectified Spirit, a gallon.

Water, sufficient to prevent empyreuma.

Macerate for twenty-four hours, and distil a gallon by a gentle fire.

SPIRITUS LAVANDULÆ COMPOSITUS.

COMPOUND SPIRIT OF LAVENDER:

Spiritus lavendulæ compositus, P. L. 1787. P. L. 1745.

Spiritus lavendulæ compositus Matthiæ, P. L. 1720,

Take of Spirit of Lavender, three pints.

Spirit of Rosemary, a pint.

Cinnamon Bark bruised,

Nutmegs bruised, of each half an ounce.

Red Sanders Wood sliced, an ounce.

Macerate for fourteen days, and strain.

SPIRITUS MENTHÆ PIPERITÆ.

SPIRIT OF PEPPERMINT.

Spiritus menthæ piperitidis, P. L. 1787. Aqua menthæ piperitidis spirituosâ, P. L. 1745.

Take of Peppermint dried, a pound and half.

Proof Spirit, a gallon.

Water, sufficient to prevent empyreuma.

Macerate for twenty-four hours, and distil a gallon by a gentle fire.

SPIRITUS MENTHÆ VIRIDIS.

SPIRIT OF SPEARMINT.

Spiritus menthæ sativæ, P. L. 1787. *Aqua menthæ vulgaris spirituosæ*, P. L. 1745.

Take of Spearmint dried, a pound and half.

Proof Spirit, a gallon.

Water, sufficient to prevent empyreuma.

Macerate for twenty-four hours, and distil a gallon by a gentle fire.

SPIRITUS MYRISTICÆ.

SPIRIT OF NUTMEG.

Spiritus myristicæ, P. L. 1787. *Aqua nucis moschatæ*, P. L. 1745.

Take of Nutmegs bruised, two ounces.

Proof Spirit, a gallon.

Water, sufficient to prevent empyreuma.

Macerate for twenty-four hours, and distil a gallon by a gentle fire.

SPIRITUS PIMENTÆ.

SPIRIT OF PIMENTA.

Spiritus pimento, P. L. 1787.

Take of Pimenta bruised, two ounces.

Proof Spirit, a gallon.

Water, sufficient to prevent empyreuma.

Macerate for twenty-four hours, and distil a gallon by a gentle fire.

SPIRITUS PULEGII.

SPIRIT OF PENNYROYAL.

Spiritus pulegii, P. L. 1787. Aqua pulegii spirituosæ, P. L. 1745.

Take of Pennyroyal dried, a pound and half.

Proof Spirit, a gallon.

Water, sufficient to prevent empyreuma.

Macerate for twenty-four hours, and distil a gallon by a gentle fire.

SPIRITUS ROSMARINI.

SPIRIT OF ROSEMARY.

Spiritus Rosmarini, P. L. 1787. P. L. 1745.

Take of Rosemary tops fresh, two pounds.

Proof Spirit, a gallon.

Water, sufficient to prevent empyreuma.

Macerate for twenty-four hours, and distil a gallon by a gentle fire.

TINCTURÆ.

TINCTURES.

ALL Tinctures ought to be prepared in stopped glass bottles, and to be often shaken during the time the articles are macerating.

Tinctures can be kept unchanged for a great length of time, and therefore afford a convenient form for the exhibition of those substances which the menstruum has the power of dissolving. These are mostly active parts of vegetables, and, in some instances, saline substances also, and on account of their convenience they form a large proportion of the preparations of pharmacy. There are few instances in which they are given alone, and attention is to be paid to the vehicle in which they are administered, that they be not precipitated or decomposed thereby. The heat to which they are exposed during their preparation ought not to exceed 80°, at which the vessel, in which they are preparing, can be kept stopped without hazard. Rectified spirit is seldom used for their preparation, but for the most part the proof or diluted spirit, in producing the effect of which, the water acts as well as the alcohol, and both together extract more effectually the virtues of the drug. It has been found that a fortnight's maceration is amply sufficient for the agency of the menstruum; this time is therefore usually taken, and adopted here; after it, the clear tincture is to be filtered

through paper, and kept for use, and it should not be allowed to stand upon its ingredients in the bottle until the whole is used, as is still the practice in some shops. The tinctures in rectified spirit usually precipitate on the addition of water. The influence of a quantity of alcohol taken into the stomach is definite and stimulating, and against this effect of the menstruum the greater part of the matters dissolved in it does not militate; in some instances, however, the action of the menstruum is a secondary consideration, compared to its solvent powers over particular articles, and it is then employed for the purpose of dissolving substances of contrary indications to itself.

TINCTURA ALOËS.

TINCTURE OF ALOË.

Tinctura Aloës, P. L. 1787.

Take of the Extract of Spike Aloë powdered, half an ounce.

Extract of Liquorice, an ounce and half.

Water, a pint.

Rectified Spirit, four fluidounces.

Macerate in a sand bath until the extract is dissolved, and then strain.

The liquorice covers the taste of the aloë, and helps more readily to suspend it. The spirit constitutes but $\frac{1}{5}$ th of the

menstruum, and therefore it may be given in larger doses and more freely than the stronger tinctures.

TINCTURA ALOËS COMPOSITA.

COMPOUND TINCTURE OF ALOË.

Tinctura Aloës composita, P. L. 1787. Elixir Aloës
P. L. 1745. Elixir proprietatis, P. L. 1720.

Take of Extract of Spiked Aloë powdered,
Saffron, of each three ounces.

Tincture of Myrrh, two pints.

Macerate for fourteen days, and strain.

TINCTURA ASSAFCETIDÆ.

TINCTURE OF ASSAFCETIDA.

Tinctura Asæ fœtidæ, P. L. 1787. Tinctura fætida,
P. L. 1745.

Take of Assafoetida, four ounces.

Rectified Spirit, two pints.

Macerate for fourteen days, and strain.

TINCTURA AURANTII.

TINCTURE OF ORANGE PEEL.

Tinctura Corticis Aurantii, P. L. 1787.

Take of fresh Orange Peel, three ounces.

Proof Spirit, two pints.

Macerate for fourteen days, and strain.

TINCTURA BENZÖINI COMPOSITA.

COMPOUND TINCTURE OF BENZÖIN.

Tinctura Benzöes composita, P. L. 1787. *Balsamum traumaticum*, P. L. 1745.

Take of Benzöin, three ounces.

Storax Balsam strained, two ounces.

Balsam of Tolu, an ounce.

Extract of Spiked Aloë, half an ounce.

Rectified Spirit, two pints.

Macerate for fourteen days, and strain.

TINCTURA CALUMBÆ.

TINCTURE OF COLUMBA.

Tinctura colombæ, P. L. 1787.

Take of Calumba Root sliced, two ounces
and a half.

Proof Spirit, two pints.

Macerate for fourteen days, and strain.

TINCTURA CAMPHORÆ COMPOSITA.

COMPOUND TINCTURE OF CAMPHOR.

Tinctura opii camphorata, P. L. 1787. Elixir paregoricum,
P. L. 1745.

Take of Camphor, two scruples.

Opium dried and powdered,

Benzöic Acid, of each a drachm.

Proof Spirit, two pints.

Macerate for fourteen days, and strain.

The name of this preparation has been changed, because it was occasionally the source of mistakes under its old one, and Tincture of Opium was sometimes substituted for it. It differs also from the former preparation in the omission of the oil

of aniseed, which was often complained of as disagreeable to the palate, and to which, as an addition, no increase of power could be affixed.

TINCTURA CAPSICI.

TINCTURE OF CAPSICUM.

Take of Capsicum Berries, an ounce.

Proof Spirit, two pints.

Macerate for fourteen days, and strain.

This warm and useful tincture is now for the first time introduced.

TINCTURA CARDAMOMI.

TINCTURE OF CARDAMOM.

Tinctura cardamomi, P. L. 1787. P. L. 1745.

Take of Cardamom Seeds bruised, three ounces.

Proof Spirit, two pints.

Macerate for fourteen days, and strain.

TINCTURA CARDAMOMI
COMPOSITA.

COMPOUND TINCTURE OF CARDAMOM.

Tinctura cardamomi composita, P. L. 1787. Tinctura stomachica, P. L. 1745.

Take of Cardamom Seeds,
Carraway Seeds,
Cochineal, of each bruised, two
drachms.
Cinnamon Bark bruised, half an
ounce.
Raisins stoned, four ounces.
Proof Spirit, two pints.

Macerate for fourteen days, and strain.

In the Pharmacopœia of 1677, there was a preparation analogous to this under the name of *Usquebach* or *Aqua vitæ Hibernis popularis*.

TINCTURA CASCARILLÆ.

TINCTURE OF CASCARILLA.

Tinctura cascarillæ, P. L. 1787.

Take of Cascarilla Bark powdered, four ounces.

Proof Spirit, two pints.

Macerate for fourteen days, and strain.

TINCTURA CASTOREI.

TINCTURE OF CASTOR.

Tinctura castorei, P. L. 1787. P. L. 1745. P. L. 1720.

Take of Castor powdered, two ounces.

Rectified Spirit, two pints.

Macerate for seven days, and strain.

TINCTURA CATECHU.

TINCTURE OF CATECHU.

Tinctura catechu, P. L. 1787. *Tinctura japonica*, P. L. 1745.

Take of Extract of Catechu, three ounces.

Cinnamon Bark bruised, two ounces.

Proof Spirit, two pints.

Macerate for fourteen days, and strain.

TINCTURA CINCHONÆ.

TINCTURE OF CINCHONA.

Tinctura cinchona, P. L. 1787. *Tinctura corticis peruviani simplex*, P. L. 1745.

Take of Lance-leaved Cinchona Bark
powdered, seven ounces.

Proof Spirit, two pints.

Macerate for fourteen days, and strain.

The proportion of Bark is increased from six to seven ounces, and it may be thought by some that a longer maceration would be of additional advantage.

TINCTURA CINCHONÆ COMPOSITA.

COMPOUND TINCTURE OF CINCHONA.

Tinctura cinchonæ composita, P. L. 1787.

Take of Lance-leaved Cinchona Bark
powdered, two ounces.

Orange-peel dried, an ounce and
half.

Serpentary Root bruised, three
drachms.

Saffron, a drachm.

Cochineal powdered, two scruples.

Proof Spirit, twenty fluid ounces.

Macerate for fourteen days, and strain.

It has been thought right to retain the former directions for this medicine, though one colouring matter, either the cochineal or the saffron, might in fact have been sufficient.

TINCTURA CINNAMOMI.

TINCTURE OF CINNAMON.

Tinctura cinnamomi, P. L. 1787. P. L. 1745. Aqua cinnamomi fortis, P. L. 1720.

Take of Cinnamon Bark bruised, three ounces.

Proof Spirit, two pints.

Macerate for fourteen days, and strain.

TINCTURA CINNAMOMI COMPOSITA.

COMPOUND TINCTURE OF CINNAMON.

Tinctura cinnamomi composita, P. L. 1787. Tinctura aromatica, P. L. 1745.

Take of Cinnamon Bark bruised, six drachms.

Cardamom Seeds bruised, three drachms.

Long Pepper powdered,
Ginger Root sliced, of each two drachms.

Proof Spirit, two pints.

Macerate for fourteen days, and strain.

TINCTURA DIGITALIS.

TINCTURE OF FOXGLOVE.

Take of Foxglove Leaves dried, four
ounces.

Proof Spirit, two pints.

Macerate for fourteen days, and strain.

This Tincture is introduced as possessing the properties of the plant in a convenient, uniform, and permanent form. Since the use of this Herb in tincture has been adopted, tinctures of different strengths have been prepared, and employed rather vaguely when the article was ordered; this is a saturated Tincture, and as such has been generally preferred.

TINCTURA GENTIANÆ COMPOSITA.

COMPOUND TINCTURE OF GENTIAN.

Tinctura gentianæ composita, P. L. 1787. Tinctura amara,
P. L. 1745.

Take of Gentian Root sliced, two ounces.

Orange Peel dried, an ounce.

Cardamom Seeds bruised, half an
ounce.

Proof Spirit, two pints.

Macerate for fourteen days, and strain.

TINCTURA GUAIACI.

TINCTURE OF GUAIIACUM.

Take of Guaiacum Gum-resin powdered,
half a pound.

Rectified Spirit, two pints.

Macerate for fourteen days, and strain.

Guaiacum is entirely soluble in alcohol, and not at all in water; Mr. Brande's Experiments tend to establish it as a peculiar and distinct vegetable matter. The Tincture of Guaiacum merely without other additions, is now first introduced as a useful mode of exhibiting it where its combination with ammonia is not required. This and some other tinctures precipitate on being added to an aqueous fluid, and when exhibited in draughts require to be triturated with some viscid liquor, as mucilage, previous to the addition of the water.

TINCTURA GUAIACI AMMONIATA.

AMMONIATED TINCTURE OF GUAIIACUM.

Tinctura Guaici ammoniata, P. L. 1787. Tinctura Guaiacina volatilis, P. L. 1745.

Take of Guaiacum Gum-resin powdered,
four ounces.

Compound Spirit of Ammonia, a
pint and half.

Macerate for fourteen days, and strain.

TINCTURA HELLEBORI NIGRI.

TINCTURE OF BLACK HELLEBORE.

Tinctura Hellebori nigri, P. L. 1787. Tinctura Melampodii, P. L. 1745. Tinctura Hellebori, P. L. 1720.

Take of Black Hellebore Root sliced,
four ounces.

Proof Spirit, two pints.

Macerate for fourteen days, and strain.

TINCTURA HUMULI.

TINCTURE OF HOP.

Take of Hops, five ounces.

Proof Spirit, two pints.

Macerate for fourteen days, and strain.

This and other modifications of the preparations of this bitter have lately been strongly recommended by Mr. Freke, (*Observations on the Humulus Lupulus*,) and employed by many practitioners, who believe that it unites sedative and tonic powers, which thus form a useful combination.

TINCTURA HYOSCYAMI.

TINCTURE OF HENBANE.

Take of Henbane Leaves dried, four
ounces.

Proof Spirit, two pints.

Macerate for fourteen days, and strain.

That the henbane itself is narcotic is abundantly proved, that the same power is found in its tincture is also certain, but in order to produce the same degree of effect a much larger dose than of tincture of opium seems to be required. In some of the statements made to the College however a different opinion has been given, and twenty-five drops have been considered as equivalent to twenty of tincture of opium; it does not produce costiveness or that subsequent confusion of head which often follows the use of opium, and will therefore be, even if its powers be weaker, of considerable use.

TINCTURA JALAPÆ.

TINCTURE OF JALAP.

Tinctura Jalapii, P. L. 1787. P. L. 1745.

Take of Jalap Root powdered, eight
ounces.

Proof Spirit, two pints.

Macerate for fourteen days, and strain.

TINCTURA KINO.

TINCTURE OF KINO.

Take of Kino powdered, three ounces.

Proof Spirit, two pints.

Macerate for fourteen days, and strain.

All the astringency of kino is included in this preparation.

TINCTURA LYTÆ.

TINCTURE OF BLISTERING FLY.

Tinctura Cantharidis, P. L. 1787. Tinctura Cantharidum,
P. L. 1745. P. L. 1720.

Take of Blistering Flies bruised, three
drachms.

Proof Spirit, two pints.

Macerate for fourteen days, and strain.

The colouring matter of the former preparation is omitted as useless, and that of the fly increased. In order that this preparation may be certain in its effects, it is necessary that the insects should be fresh and perfect; for where this has not been attended to, I have seen very large doses given without any sensible effect whatever.

TINCTURA MYRRHÆ.

TINCTURE OF MYRRH.

Tinctura Myrrhæ, P. L. 1787. P. L. 1745. Tinctura
Myrrhæ simplex, P. L. 1720.

Take of Myrrh braised, three ounces.

Rectified Spirit, twenty-two fluid-
ounces.

Water, a pint and half.

Macerate for fourteen days, and strain.

TINCTURA OPII.

TINCTURE OF OPIUM.

Tinctura Opii, P. L. 1787.

Take of hard Opium powdered, two
ounces and a half.

Proof Spirit, two pints.

Macerate for fourteen days, and strain.

A simple tincture of opium was first introduced into the Pharmacopœia of 1787. Selected common opium is now

used instead of the purified opium there directed. It is only when opium is in a state of dryness sufficient to be reducible to powder that it can be uniform in its strength, for in its ordinary state it contains an unequal quantity of water. The strength, and therefore the dose, remains nearly as in the former preparation, but it must always be recollected in its use, that the minim or sixtieth part of the fluidrachm is equal to two drops, according to the old division by that method.

TINCTURA RHEI.

TINCTURE OF RHUBARB.

Tinctura rhabarbari, P. L. 1787. Tinctura rhabarbari-spirituosa, P. L. 1745. Tinctura rhabarbari, P. L. 1720.

Take of Rhubarb Root sliced, two ounces.
Cardamom Seeds bruised, an ounce
and half.
Saffron, two drachms.
Proof Spirit, two pints.

Macerate for fourteen days, and strain.

TINCTURA RHEI COMPOSITA.

COMPOUND TINCTURE OF RHUBARB.

Tinctura rhabarbari composita, P. L. 1787.

Take of Rhubarb Root sliced, two ounces.

Liquorice Root bruised, half an ounce.

Ginger Root sliced,

Saffron, of each two drachms.

Water, a pint.

Proof Spirit, twelve fluidounces.

Macerate for fourteen days, and strain.

This mixed menstruum extracts more of the purgative quality of the rhubarb than the former, and the root itself is also in greater proportion; they are both retained from the former Pharmacopœia.

TINCTURA SCILLÆ.

TINCTURE OF SQUILLS.

Tinctura scillæ, P. L. 1787.

Take of Squill Root fresh dried, four ounces.

Proof Spirit, two pints.

Macerate for fourteen days, and strain.

TINCTURA SENNÆ.

TINCTURE OF SENNA.

Tinctura sennæ, P. L. 1787. P. L. 1745. Elixir salutis,
P. L. 1720.

Take of Senna Leaves, three ounces.

Carraway Seeds, three drachms.

Cardamom Seeds bruised, a
drachm.

Raisins stoned, four ounces.

Proof Spirit, two pints.

Macerate for fourteen days, and strain.

TINCTURA SERPENTARIÆ.

TINCTURE OF SERPENTARY.

Tinctura serpentariæ, P. L. 1787. P. L. 1745. Tinctura
serpentariæ virginianæ, P. L. 1720.

Take of Serpentary Root, three ounces.

Proof Spirit, two pints.

Macerate for fourteen days, and strain.

TINCTURA VALERIANÆ.

TINCTURE OF VALERIAN.

Tinctura valerianæ, P. L. 1787. Tinctura valerianæ simplex,
P. L. 1745.

Take of Valerian Root, four ounces.
Proof Spirit, two pints.

Macerate for fourteen days, and strain.

TINCTURA VALERIANÆ
AMMONIATÆ.

AMMONIATED TINCTURE OF VALERIAN.

Tinctura valerianæ ammoniatæ, P. L. 1787. Tinctura valerianæ volatilis, P. L. 1745.

Take of Valerian Root, four ounces.
Aromatic Spirit of Ammonia, two
pints.

Macerate for fourteen days, and strain.

TINCTURA ZINGIBERIS.

TINCTURE OF GINGER.

Tinctura Zingiberis, P. L. 1787.

Take of Ginger Root sliced, two ounces.

Proof Spirit, two pints.

Macerate for fourteen days, and strain.

Sliced ginger is now substituted for the powder. The powder in this and other Tinctures into which it enters rendered the tincture, as formerly prepared, thick and muddy.

ÆTHEREA.

PREPARATIONS OF ÆTHERS.

ÆTHER SULPHURICUS.

SULPHURIC ÆTHER.

TAKE of Rectified Spirit,

Sulphuric Acid, of each by weight
a pound and half.

Pour the spirit into a glass retort, then gradually add to it the acid, shaking it after each addition, and taking care that their temperature, during the mixture, may not exceed 120° . Immerse the retort very cautiously in a sand bath, previously heated to 200° , so that the liquor may boil as speedily as possible; and let the Æther pass over into a tubulated receiver, to the tubulure of which another receiver is applied, which is to be kept cold by immersion in ice or water. Distil the liquor until a heavier part also begins to pass over and appear un-

der the æther in the bottom of the receiver. To the liquor which remains in the retort pour on twelve fluidounces more of alcohol, and repeat the distillation in the same manner.

The object of these directions is to obtain the largest quantity of æther, and to place it under circumstances in which it may form at once, without any of that previous distillation of spirit, which happens during the time that the mixture is gradually acquiring the temperature necessary to the formation of æther. The directions given in the text are sufficient, but it may be useful also to describe the changes which the materials undergo in the process. If equal quantities of alcohol and sulphuric acid are mixed together at once, a heat of 160° is produced, and an abundant vapour with an ethereal smell arises. If the mixture be made gradually at intervals, so that the increase of temperature produced may not exceed 120° at any time, this loss does not take place. If such a mixture be gradually heated, part of the alcohol distils over unchanged; if heat be produced at once equal to 180° , the mixture will boil, and æther will be formed and pass over; but in order that the liquid itself may more speedily attain this temperature the sand in which it is immersed should be hotter. When nearly half the weight of the alcohol has passed over in æther, or the æther is to the alcohol as 1,00 to 2,28, the sulphuric acid begins to be decomposed, white fumes are seen in the retort, sulphurous acid manifests itself, and a stratum of a heavier liquor begins to form under the first in the receiver. The receiving vessel is to be removed, and if the heat be still continued, sulphurous acid, water, and a peculiar yellowish

sulphurous ethereal liquor, called oil of wine, are formed, and no more æther. The mixture then rises to a temperature of 190° , the charge becomes black, much carburetted hydrogen gas arises, with carbonic acid, water and sulphurous acid; and the dense charge from which it issues, swells up from the copious extrication of gas, and without the retort be immediately removed from the sand heat it boils over. The residue consists chiefly of sulphuric acid, blackened and thickened by carbon. The æther which passes over depends upon a new arrangement of the elements of alcohol, determined by the presence of sulphuric acid and a certain temperature, and whilst it does pass, the sulphuric acid is not decomposed: hence, by arresting the process when all the æther has passed, and adding a fresh quantity of spirit, it will still, though somewhat diluted by the water which has been formed, be equal to its conversion into æther.

ÆTHER RECTIFICATUS.

RECTIFIED ÆTHER.

Æther vitriolicus, P. L. 1787.

Take of Sulphuric Æther, fourteen fluid-ounces.

Fused Potass, half an ounce.

Distilled Water, two fluidounces.

Dissolve the Potass in the water, and add thereto the æther, shaking them well together until they are mixed. Lastly, by means of a temperature of about 200° , distil over twelve ounces of rectified æther from a large retort into a cooled receiver.

Æther is impregnated with some sulphurous acid, as is evident to the smell, and with some æthereal oil; and these require a second process or rectification to separate them. Potass unites to the acid, and requires to be added in a state of solution, and in sufficient quantities for the purpose of neutralizing it, and it also forms a soap with the oil; it is advantageous also to use a less quantity of water than exists in the ordinary solution of potass, and therefore the present directions are preferred to it. The first admixture should be slowly and cautiously made, and afterwards the liquors should be shaken together that the potass may be brought into perfect contact with the acid. The rectified æther thus obtained will be to the alcohol originally employed as 1 to 3. Æther is lighter than alcohol, with a strong peculiar smell and taste; it volatilizes at 112° , and dries the moment it is poured upon the hand, which is the ordinary test of its goodness; on this its evaporation it produces a considerable degree of cold. It is readily inflammable, and burns with a white flame; and one part is soluble in ten parts of water. If pure, its boiling point is 98° .

OLEUM ÆTHEREUM.

ÆTHEREAL OIL.

Oleum vini, P. L. 1787.

After the distillation of Sulphuric Æther, carry on the distillation with a less degree of heat until a black froth begins to rise, then immediately remove the retort from the fire. Add sufficient water to the liquor in the retort, that the oily part may float upon the surface. Separate this, and add to it as much

solution of lime as may be necessary to neutralize the adherent acid, and shake them together. Lastly, collect the æthereal oil which separates.

This oil is formed in the latter part of the process for æther, if instead of adding rectified spirit for a second distillation, it be slowly carried on until the moment when the intumescence of the charge obliges the operator to remove the retort from the fire. In the rectification of æther, potass is used for the separation of the sulphurous acid, and also of any of this oil which has passed over; here the use of potass which unites with the oil would be improper, as the only object is to separate the sulphurous acid, and on this account lime-water is preferable. This oil is only used as an ingredient in the compound spirit of æther. It is of a yellow colour, less volatile than æther, soluble in alcohol, and insoluble in water.

SPIRITUS ÆTHERIS AROMATICUS.

AROMATIC SPIRIT OF ÆTHER.

Elixir vitrioli dulce, P. L. 1745.

Take of Cinnamon Bark bruised, three drachms.

Cardamom Seeds powdered, a drachm and half.

Long Pepper powdered,

Ginger Root sliced, of each a drachm.

Spirit of sulphuric Æther, a pint.

Macerate for fourteen days in a stopped glass bottle, and strain.

Æther itself will not combine with volatile oils, but, with the addition of spirit, as in this instance, it forms a useful medicine, which was excluded from the last Pharmacopœia, but is now restored again.

SPIRITUS ÆTHERIS COMPOSITUS.

COMPOUND SPIRIT OF ÆTHER.

Take of Spirit of sulphuric Æther, a pint.
Æthereal Oil, two fluidrachms.

Mix.

This preparation is analogous to the *Liquor anodynus mineralis* of Hoffman, (*Obs. Phys. Chem. lib. ii. Dissert. de Acido vitriol. vinos. Med. Rat. Syst. v. 3.*) and is imagined by many practitioners to allay irritation more effectually than any other preparation of Æther.

SPIRITUS ÆTHERIS NITRICI.

SPIRIT OF NITRIC ÆTHER.

Spiritus Ætheris nitrosi, P. L. 1787. Spiritus Nitri dulcis,
P. L. 1745.

Take of Rectified Spirit, two pints.

Nitric Acid by weight, three
ounces.

Mix them very gradually together, by pouring the acid into the spirit, and taking care that the heat during mixture does not exceed 120° ; then distil, by means of a gentle heat, twenty-six fluidounces.

The mixture of these ingredients requires especial caution, and to be very gradually made in the order here directed. The acid is to be added in small quantities, and the mixture shaken after each addition, and allowed to cool before a fresh one is made. The former proportion of acid has been diminished, but it will still be found fully sufficient for the purpose; indeed, it seems formerly to have been increased without any very good reason, for Frederick Hoffman originally used eight parts spirit and one of acid. The preparation of nitric ether separately is matter of great hazard and difficulty; processes for it are given in chemical books, but it is not an operation of pharmacy. It seems to hold nitrous gas in solution from the circumstance of its blackening the solution of green sulphate of iron; and it usually contains some portion of acid, which is not directed here to be separated by rectification. The agency of nitric acid upon alcohol is similar to that of sulphuric, except that the new affinities, to which the presence of either acid predisposes, are different. When sulphuric acid is used, water is formed and charcoal separated; when nitric acid, carbonic acid is formed by its immediate decomposition, and no water.

SPIRITUS ÆTHERIS SULPHURICI.

SPIRIT OF SULPHURIC ÆTHER.

Spiritus Ætheris vitriolici, P. L. 1787. Spiritus Vitrioli
dulcis, P. L. 1745.

Take of Sulphuric Æther, half a pint.

Rectified Spirit, a pint.

Mix.

This spirit is here prepared definitely by mixing alcohol and æther in certain quantities. In the former Pharmacopœia it was produced with less precision by the slow and gradual increase of the heat applied to the charge for æther, in which temperature alcohol first passed over unchanged, and was mixed in the receiver with the æther which passed over in the subsequent stage, when the heat had increased so as to be sufficient for its formation.

V I N A.

WINES.

WINE has of late been particularly and properly objected to by Parmentier (A. C.) as a menstruum for substances employed in medicine, on account of its increased tendency to decomposition when these additional matters are dissolved in it. Another objection too may be derived from the unequal strength and quality of wines sold under one common name. The use of weak spirit as a menstruum has therefore been preferred by him, of which he thinks wine may, if the form be still desirable, be used as a vehicle. All these objections are certainly well founded, but the general and established practice is in favour of its use, and it may be added, that the properties of medicated wines, although certain changes may take place during their preparation, are sufficiently established by experience. The College have also defined the sort of wine they employ (*Sherry*) more distinctly than the general term Spanish white wine did in the former Pharmacopœia..

VINUM ALOËS.

WINE OF ALOË.

Vinum Aloës, P. L. 1787. Tinctura sacra, P. L. 1745.

Tinctura Hieræ, P. L. 1720.

Take of Extract of Spike Aloë, eight
ounces.

Canella Bark, two ounces.

Wine, six pints.

Proof Spirit, two pints.

Rub the aloë into powder with white sand, previously cleansed from any impurities: rub the canella bark also into powder, and, after having mixed these powders together, pour on the wine and spirit. Macerate for fourteen days, occasionally shaking the mixture, and afterwards strain.

On the revision of the Pharmacopœia in 1787, the time of digestion and other circumstances relative to this preparation were established by experiment with a great deal of care.

VINUM IPECACUANHÆ.

WINE OF IPECACUANHA.

Vinum Ipecacuanhæ, P. L. 1787. Vinum Ipecacoanhæ,
P. L. 1745.

Take of Ipecacuanha Root bruised, two
ounces.

Wine, two pints.

Macerate for fourteen days, and strain.

VINUM OPII.

WINE OF OPIUM.

Tinctura Thebaica, P. L. 1745. Laudanum liquidum Syden-
hami, P. L. 1720.

Take of Extract of Opium, an ounce.

Cinnamon Bark bruised,

Cloves bruised, of each a drachm.

Wine, a pint.

Macerate for eight days, and strain.

The degree of narcotic power of this preparation is nearly the same as that of the ordinary Tincture of Opium, from which it differs, in having the Extract for its

basis, in the addition of aromatics, and in the vehicle employed. I stated that the Extract of opium seemed to produce less consequent affection of the brain and nervous system than crude opium, and the same effect seems further to be obviated by the aromatics which are here joined to it. It is a composition of the same articles but in different proportions, as the Tincture thebaica of P. L. 1745, and as the celebrated liquid Laudanum of Sydenham; now this is still in use, and it appears to possess such advantages by the modification of opium it affords, as to justify its restoration to the Pharmacopœia.

ACETICA.

PREPARATIONS OF VINEGAR.

VINEGAR, or rather the acetic acid, distilled from it, is found to promote the solution of the active principle of squill, colchicum, and some aromatics, beyond any agency of the water alone with which it is mixed.

ACETUM COLCHICI.

VINEGAR OF MEADOW SAFFRON.

Oxymel Colchici, P. L. 1787.

Take of Meadow Saffron Root sliced, an
ounce.

Acetic Acid, a pint.

Proof Spirit, a fluidounce.

Macerate the meadow saffron root in the vinegar, in a covered glass vessel, for twenty-four hours; then press out the liquor, and set it by that the fæculencies may subside; lastly, add the spirit to the clear liquor.

The powers of colchicum as a diuretic have especially been celebrated in Germany, and an oxymel of it was introduced into the former Pharmacopœia from Störck's publication on the subject. The bulbs of the colchicum appear to be most succulent in autumn, and have been then directed to be used in preference to any other time of the year (Pharm. Austr.) It has been thought better to keep under its present form, as the honey may be easily added extemporaneously and in any proportion if it be thought requisite.

ACETUM SCILLÆ.

VINEGAR OF SQUILL.

Acetum Scillæ, P. L. 1787. Acetum scilliticum, P. L. 1745.
P. L. 1720.

Take of Squill Root fresh, dried, a pound,
Acetic Acid, six pints.
Proof Spirit, half a pint.

Macerate the squill root in the acid with a gentle heat, in a closed glass vessel, for twenty-four hours; then press out the liquor, and set it by that the fæculencies may subside; lastly, add the spirit to the clear liquor.

MELLITA.

PREPARATIONS OF HONEY.

FORMERLY more medicinal powers were ascribed to honey than are at present allowed to it, and hence it entered into a great variety of officinal preparations, and was much used. Its consistence, however, and tenacity, and also its disposition to act upon the bowels, give it some advantages in many instances over ordinary syrup; and the articles included in this chapter are all of them extensively employed in practice.

MEL DESPUMATUM.

CLARIFIED HONEY.

Mel despumatum, P. L. 1787. P. L. 1745.

Melt the honey in a water bath, then take off the scum.

Honey heated in a water bath becomes very liquid, and its impurities rise to the surface, and are skimmed off. Its specific gravity has been fixed at 1,31, but the tenacity of medicated honeys in general is the more usual test of the proper consistence. If a portion of it, when cold, be divided by the edge of a spoon, it ought to unite again very slowly.

MEL BORACIS.

HONEY OF BORAX.

Take of Borate of Soda powdered, a
drachm.

Clarified Honey, an ounce.

Mix.

This combination is so usefully and generally employed as a detergent in aphthous affections of the fauces, that it has been thought proper to introduce the present directions.

MEL ROSÆ.

ROSE HONEY.

Mel Rosæ, P. L. 1787. Mel rosaceum, P. L. 1745. Mel rosatum, P. L. 1720.

Take of Red Rose Petals dried, four
ounces.

Boiling Water, three pints.

Clarified Honey, five pounds.

Macerate the rose petals in the water for six hours, and strain; then add the honey to the strained liquor, and, by means of a water bath, boil it down to a proper consistence.

The beauty of this preparation depends upon its being boiled very slowly.

OXYMEL.

OXYMEL.

Mel acetatum, P. L. 1787. Oxymel simplex, P. L. 1745.
P. L. 1720.

Take of Clarified Honey, two pounds.

Acetic Acid, two pints.

Boil them down to a proper consistence in a glass vessel over a slow fire.

OXYMEL SCILLÆ.

OXYMEL OF SQUILL.

Oxymel scillæ, P. L. 1787. Oxymel scilliticum, P. L. 1745.
P. L. 1720.

Take of Clarified Honey, three pounds.

Vinegar of Squill, two pints.

Boil them down to a proper consistence in a glass vessel over a slow fire.

SYRUP I.

SYRUPS.

SYRUPS are to be kept in a place the temperature of which does not exceed 55° .

Syrup consists of a simple solution of sugar in water of about the specific gravity and consistence of honey, and it is also impregnated with additional substances for the purpose of their medical qualities, or their colour, or their flavour, under all of which indications this class of substances is in very general use. Refined sugar is directed for their preparation, and with it they require no farther clarification or separation of impurities than what is mentioned in the text.

To keep syrups without fermenting, it is necessary that their temperature should be attended to, and kept as near 55° as possible. A good cellar will answer this purpose, for there are few summers in which the temperature of such a place rises to 60° .

SYRUPUS.

SYRUP.

Syrupus, P. L. 1787. *Syrupus simplex*, P. L. 1745.

Take of Refined Sugar, two pounds and a half.

Water, a pint.

Dissolve the sugar in the water by the heat of a water bath; then set it aside for twenty-four hours; take off the scum, and, if there be any fæculencies, pour off the clear liquor from them.

The proportion of sugar to the liquor should be accurately managed so as completely to saturate it; if there be less in quantity than this, and the syrup be too thin, it will be disposed to ferment; if too much loaded the sugar will crystallize, which latter is by far the least inconvenience. The proportion of sugar is here increased one-fifth above that of the former Pharmacopœia: in that work however there is in fact no preparation strictly speaking given under this specific title. The proportions which have been used however are those which stand there as a sort of general direction applicable to various cases as they afterwards occur.

SYRUPUS ALTHÆÆ.

SYRUP OF MARSHMALLOW.

Syrupus althææ, P. L. 1787. Syrupus ex althæâ, P. L. 1745.

Syrupus de althæa, P. L. 1720.

Take of the fresh Root of Marshmallow
bruised, half a pound.

Refined Sugar, two pounds.

Water, four pints.

Boil down the water with the marshmallow-root to half, and press out the liquor when

cold. Set it by for twenty-four hours, that the fæculencies may subside ; then pour off the liquor, and, having added the sugar, boil it down to a proper consistence.

The decoction of marshmallow is mucilaginous and thick, it takes therefore a less proportion of sugar, and that requires a greater heat than the water bath to unite it perfectly. This form was originally taken from Riverius (*Prax.* l. 14, c. 1.)

SYRUPUS AURANTII.

SYRUP OF ORANGE.

Syrupus corticis aurantii, P. L. 1787. Syrupus e corticibus aurantiorum, P. L. 1745. Syrupus de cortice aurantiorum, P. L. 1720.

Take of fresh Orange-peel, two ounces.

Boiling Water, a pint.

Refined Sugar, three pounds.

Macerate the orange-peel in the water for twelve hours in a covered vessel; then pour off the liquor, and add the sugar.

SYRUPUS CROCI.

SYRUP OF SAFFRON.

Syrupus croci, P. L. 1787. P. L. 1745. P. L. 1720.

Take of Saffron, an ounce.

Boiling Water, a pound.

Refined Sugar, two pounds and a half.

Macerate the saffron in the water for twelve hours in a covered vessel, then strain the liquor, and add the sugar.

This syrup was formerly made by boiling down a wine of saffron with sugar to the proper consistence: it is chiefly used as a colouring addition.

SYRUPUS LIMONIS.

SYRUP OF LEMON.

Syrupus succi limonis, P. L. 1787. Syrupus e succo limonum
P. L. 1745. Syrupus e succo citriorum, P. L. 1720.

Take of Lemon Juice strained, a pint.

Refined Sugar, two pounds.

Dissolve the sugar in the lemon juice in the manner directed for syrup.

This as well as other acid juices dissolve somewhat less sugar than water does.

SYRUPUS MORI.

SYRUP OF MULBERRY.

Syrupus mori, P. L. 1787. *Syrupus mororum*, P. L. 1745.

Take of Mulberry Juice strained, a pint.

Refined Sugar, two pounds.

Dissolve the sugar in the mulberry juice in the manner directed for syrup.

SYRUPUS PAPAVERIS.

SYRUP OF POPPY.

Syrupus papaveris albi, P. L. 1787. *Syrupus de Meconio*, P. L. 1745. *Syrupus de meconio, sive Diacodium*, P. L. 1720.

Take of Capsules of White Poppy dried and bruised, the seeds being separated, fourteen ounces.

Refined Sugar, two pounds.

Boiling Water, two gallons and a half.

Macerate the capsules in the water for twelve hours, then boil it down by means of a water bath to one gallon, and press out the liquor. Boil down the liquor again to two pints, and strain it while hot. Set it by for twelve hours, that the fæculencies may subside; then boil down the clear liquor to a pint, and add the sugar in the manner directed for syrup.

This syrup requires so much attention to the temperature in which it is kept, and enters so readily into the process of fermentation, that it is very often found in the shops in a state unfit for use. The committee in the first specimen were disposed to facilitate its preparation in smaller quantities, by directing a solution in water of the proportion of Extract of poppy yielded by the decoction, and the addition of the sugar thereto. The established character and certainty of the present syrup when properly prepared and kept, have however been so strongly urged, that they have restored it; but it is absolutely necessary to keep it in stone bottles in a cellar, and only to bring it into the shop in small quantities at a time.

SYRUPUS RHŒADOS.

SYRUP OF RED POPPY.

Syrupus Papaveris erratici, P. L. 1787. P. L. 1745. Syrupus
de papavere erratico, P. L. 1720.

Take of Red Poppy Petals fresh, a pound.

Boiling Water, a pint and two
fluidounces.

Refined Sugar, two pounds and a
half.

To the water, heated by means of a water bath, add the petals of the poppy gradually, stirring them in occasionally; next, having removed the vessel, macerate for twelve hours, then press out the liquor, and set it by that the fæculencies may subside; lastly, add the sugar in the manner directed for syrup.

Without the water be thus heated so as to shrink the flowers somewhat, the bulk here directed can scarcely be got into the liquid, but the heat is not to be continued longer than is necessary to produce this effect, for, if it be, the liquor will become thick and the syrup ropy.

SYRUPUS RHAMNI.

SYRUP OF BUCKTHORN.

Syrupus Spinæ cervinæ, P. L. 1787. Syrupus e Spina cervina, P. L. 1745. Syrupus de Spina cervina, P. L. 1720.

Take of the fresh Juice of Buckthorn
Berries, four pints.

Ginger Root sliced,

Pimenta powdered, of each half
an ounce.

Refined Sugar, three pounds and
a half.

Set by the juice for three days that the fæculencies may subside, and strain. To a pint of the clear juice add the ginger root and pimenta; then macerate in a gentle heat four hours, and strain; boil down what remains to one pint and a half, mix the liquors and add the sugar in the manner directed for syrup.

SYRUPUS ROSÆ.

SYRUP OF ROSES.

Syrupus rosæ, P. L. 1787. Syrupus rosarum solutivus, P. L. 1745. Syrupus e rosis siccis, P. L. 1720.

Take of Damask Rose Petals dried, seven ounces.

Refined Sugar, six pounds.

Boiling Water, four pints.

Macerate the rose petals in the water for twelve hours, and strain; evaporate the strained liquor by means of a water bath to two pints and a half; then add the sugar in the manner directed for syrup.

SYRUPUS SENNÆ.

SYRUP OF SENNA.

Take of Senna Leaves, an ounce.

Fennel Seed bruised, a drachm.

Manna,

Refined Sugar, of each a pound.

Water boiling, a pint.

Macerate the senna leaves and fennel

seeds in the water for twelve hours. Strain the liquor, and mix with it the manna and sugar.

This is introduced as a useful purgative syrup for children, which seemed to be wanting in practice.

SYRUPUS TOLUTANUS.

SYRUP OF TOLU.

Syrupus Tolutanus, P. L. 1787. Syrupus balsamicus,
P. L. 1745. P. L. 1720.

Take of Balsam of Tolu, an ounce.

Water boiling, a pint.

Refined Sugar, two pounds.

Boil the balsam in the water for half an hour in a covered vessel, occasionally stirring it, strain the liquor when it is cold, and then add the sugar, in the manner directed for syrup.

This syrup depends upon the solution of the benzoic acid of the balsam, to which it owes its flavour. The vessel in which it is made must be slightly covered, to prevent any unnecessary escape of the acid at the temperature to which it is exposed. this was formerly provided for by using a circulatory vessel or pelican, and some have preferred distilling over the water thus impregnated, and using it afterwards to make the syrup.

If however it be boiled in the usual way, it will be found to be sufficiently impregnated with the acid.

SYRUPUS ZINGIBERIS.

SYRUP OF GINGER.

Syrupus Zingiberis. P. L. 1787. P. L. 1745.

Take of Ginger Root sliced, two ounces.

Water boiling, a pint.

Refined Sugar, two pounds.

Macerate the ginger root in the water for twenty-four hours and strain, then add the sugar in the manner directed for syrup.

CONFECTIONES.

CONFECTIONS.

If Confections from long keeping have become hard, they are to be moistened with water, so that their proper consistence may be restored.

This general title includes also those articles which were formerly called Electuaries and Conserves, between which there do not appear to be sufficient grounds to make a distinction of names. In the direction of their form when it is necessary for extemporaneous use, it may be remarked that the lighter powders require about thrice their weight of honey, or twice of syrup, to bring them to a proper consistence. It is some objection to all these formulæ, that after keeping for a length of time they are apt to get dry, and then become unequal in their doses; this however may be prevented, and their consistence preserved by the occasional addition of a small quantity of water.

CONFECTIO AMYGDALÆ.

CONFECTION OF ALMONDS.

Take of Sweet Almonds, an ounce.

Acacia Gum powdered, a drachm.

Refined Sugar, half an ounce.

The almonds having been previously macerated in water, and their external coat removed, beat the whole together, until they are thoroughly incorporated.

It has been objected to the common almond mixture, which is an article of very general use, that it requires considerable time for its extemporaneous preparation, and that it spoils and cannot be kept for a sufficient time after it is made. Now the form here given obviates both these objections, for it keeps very well, and it rubs down at once into the mixture without difficulty.

CONFECTIO AURANTII.

CONFECTION OF ORANGE.

Conserva corticis exterioris aurantii hispalensis, P. L. 1787.

Conserva flavedinis corticum aurantiorum, P. L. 1745.

P. L. 1720.

Take of fresh external rind of Oranges
separated by rasping a pound.

Refined Sugar, three pounds.

Bruise the rind with a wooden pestle in a stone mortar, then, after adding the sugar, bruise it again until the whole is thoroughly incorporated.

CONFECTIO CASSIÆ.

CONFECTION OF CASSIA.

Electuarium Cassiæ, P. L. 1787. Electarium e Casia,
P. L. 1745.

Take of fresh Cassia Pulp, half a pound.

Manna, two ounces.

Tamarind Pulp, an ounce.

Syrup of Roses, half a pound.

Bruise the manna; melt it in the syrup by a water bath; then mix in the pulps, and evaporate down to a proper consistence.

CONFECTIO AROMATICA.

AROMATIC CONFECTION.

Confectio aromatica, P. L. 1787. *Confectio cardiaca*,
P. L. 1745. *Confectio Raleighana*, P. L. 1720.

Take of Cinnamon Bark,

Nutmegs, of each two ounces.

Cloves, an ounce.

Cardamom Seeds, half an ounce.

Saffron dried, two ounces.

Prepared Shells, sixteen ounces.

Refined Sugar powdered, two
pounds.

Water, a pint.

Reduce the dry substances mixed together to a very fine powder; then add the water gradually, and mix the whole, until it is incorporated.

It will be seen that the preparation of this confection is much simplified, and probably without any diminution of its powers. The infusion of zedoary was of so little importance that water is substituted for it, and the saffron, which was before used only in infusion, is here added in substance. It may perhaps be doubted whether the form of powder would not have some advantages over that of confection in this instance, and whether the carbonate of lime which the shells contain might not have been omitted. The composition is, however, so well established, that the College would not have thought themselves justified in omitting either the water or shells, and it is only when practitioners are very incautious that this latter ingredient can occasion error, by improper admixture with acids, or other substances which can decompose it, and thus alter its effects.

CONFECTIO OPII.

CONFECTION OF OPIUM.

Confectio opiata, P. L. 1787. *Philonium Londinense*, P. L. 1745. *Philonium Romanum*, P. L. 1720.

Take of hard Opium powdered, six drachms.

Long Pepper, an ounce.

Ginger Root, two ounces.

Carraway Seed, three ounces.

Syrup, a pint.

Rub together the opium and the syrup previously heated, then add the remaining articles reduced to powder, and mix.

To the credit of modern pharmacy all those complicated and confused preparations called *Mithridate*, *Theriaca*, &c. are now omitted. This confection may be considered as an effectual substitute for them in practice, and it more nearly approximates to the old Philonium than to any other medicine of the class. The rejection of mithridate from the last Pharmacopœia is understood to have been chiefly owing to the late Dr. Heberden. The former proportion of opium is nearly preserved in the present preparation, but it is less acrid and hot than before, one half of the former quantity being subtracted from the pepper and added to the carraway seeds.

CONFECTIO ROSÆ CANINÆ.

CONFECTION OF DOG ROSE.

Conserva cynosbati, P. L. 1787. Conserva fructus cynosbati, P. L. 1745. P. L. 1720.

Take of Dog Rose Pulp, a pound.

Refined Sugar powdered, twenty ounces.

Rub them together until they are thoroughly incorporated.

CONFECTIO ROSÆ GALLICÆ.

CONFECTION OF RED ROSE.

Conserva Rosæ, P. L. 1787. Conserva Rosarum rubrarum,
P. L. 1745. P. L. 1720.

Take of the Petals of the Red Rose before it is expanded, and without the claws, a pound.

Refined Sugar, three pounds.

Bruise the petals in a stone mortar, then having added the sugar, beat them again together until they are thoroughly incorporated.

The petals are more conveniently bruised by a wooden mill contrived for the purpose, than by beating in a mortar.

CONFECTIO RUTÆ.

CONFECTION OF RUE.

Electarium e baccis Lauri, P. L. 1745. P. L. 1720.

Take of Rue Leaves dried,

Carraway Seeds,

Bay Berries, of each an ounce and half.

Sagapenum, half an ounce.

Black Pepper, two drachms.

Clarified Honey, sixteen ounces.

Rub the dry articles together into a very fine powder, then add the honey, and mix the whole.

This is introduced as a substitute for the old *Bay Berry Electuary*, which was omitted in the last Pharmacopœia. Its use is confined to clysters.

CONFECTIO SCAMMONEÆ.

CONFECTION OF SCAMMONY.

Electuarium scammonii, P. L. 1787. Electarium e scammonio, P. L. 1745. Electarium caryocostinum, P. L. 1720.

Take of Scammony Gum Resin powdered,
an ounce and half.

Cloves bruised,

Ginger Root powdered, of each
six drachms.

Oil of Carraway, half a drachm.

Syrup of Roses, as much as is
sufficient.

Rub the dry articles together into very fine powder; next rub them again whilst the syrup is gradually added, then add the oil of carraway, and mix the whole well together.

CONFECTIO SENNÆ.

CONFECTION OF SENNA.

Electuarium Sennæ, P. L. 1787. Electarium lenitivum,
P. L. 1745. P. L. 1720.

Take of Senna Leaves, eight ounces.
Figs, a pound.
Tamarind Pulp,
Cassia Pulp, of each half a pound.
Pulp of Prunes,
Coriander Seeds, four ounces.
Liquorice Root, three ounces.
Refined Sugar, two pounds and a
half.

Powder the senna leaves with the coriander seeds, and separate by sifting, ten ounces of the mixed powder. Boil the remainder with the figs, and the liquorice root in four pints of water, until it be reduced to half; then press out and strain the liquor. Evaporate this liquor until a pint and a half only remains of the whole; then add the sugar to make a syrup. Lastly, mix the pulps gradually with the syrup, and having added the sifted powder, mix the whole together.

The former lenitive electuary has been considered as an elegant and effectual preparation, and is therefore retained without alteration. Cheaper modifications of it are kept in many shops, containing more active purgative matters, and such are improperly substituted for it when ordered; for in the small quantity which constitutes a dose the difference of price can scarcely be an object. The senna and coriander seeds are powdered together, the latter not being easily reducible to powder alone, and the remaining fibrous part of the senna which possesses as much power as the other part of the leaves, but is more difficultly powdered, is used for the decoction, to which the other ingredients are afterwards added.

P U L V E R E S.

POWDERS.

It may be proper under this head to state, as a general caution, the necessity of intimate and complete admixture of the several ingredients of compounded powders, and more especially of those to which any of the more active substances, as opium, scammony, &c. are added; and for this purpose to pass them, after they are mixed mechanically, through a fine sieve.

PULVIS ALOËS COMPOSITUS.

COMPOUND POWDER OF ALOË.

Pulvis aloës cum guaiaco, P. L. 1787. Pilulæ aromaticæ, P. L. 1745. Pilulæ de diambraë, P. L. 1720.

Take of Extract of spiked Aloë, an ounce
and half.

Guaiacum Gum-resin, an ounce.

Compound Powder of Cinnamon,
half an ounce.

Powder the extract of aloë and guaiacum gum-resin separately; then mix them with the compound powder of cinnamon.

The number of preparations of aloë has seemed to render it unnecessary to retain the pulvis aloës cum canella, and also the pulvis aloes cum ferro of the former Pharmacopæia, each of which seem rather suited to the purpose of extemporaneous prescription.

PULVIS CINNAMONI COMPOSITUS.

COMPOUND POWDER OF CINNAMON.

Pulvis aromaticus, P. L. 1787. *Species aromaticæ*, P. L. 1745.
Species diambraë sine odoratis, P. L. 1720.

Take of Cinnamon Bark, two ounces.

Cardamom Seeds, an ounce and half.

Ginger Root, an ounce.

Long Pepper, half an ounce.

Rub them together, so as to make a very fine powder.

The quantity of long pepper has been reduced from an ounce to half an ounce, and an additional half ounce added to the cardamom seeds.

PULVIS CONTRAJERVÆ
COMPOSITUS.

COMPOUND POWDER OF CONTRAJERVA.

Pulvis contrayervæ compositus, P. L. 1787. P. L. 1745.

Lapis contrayervæ, P. L. 1720.

Take of Contrajerva Root powdered, five
ounces.

Prepared Shells, a pound and
half.

Mix.

The Lapis Contrayervæ, P. L. 1720, was, like many other
articles at present kept in the state of powder, originally di-
rected to be made into balls.

PULVIS CORNU USTI CUM OPIO.

POWDER OF BURNT HARTSHORN WITH OPIUM.

Pulvis opiatus, P. L. 1787.

Take of hard Opium powdered, a drachm.
Hartshorn burnt and prepared,
an ounce.

Cochineal powdered, a drachm.

Mix.

This preparation affords a convenient mode of exhibiting small quantities of opium, ten grains containing one of the opium. As the article by which it was divided is of no other consequence, a small quantity of cochineal has been now added to give it a colour, and thus to prevent it from being accidentally confounded with any of the numerous white powders kept in the shops. The former name of *Pulvis opiatus* was particularly exceptionable, as sometimes in the abbreviation of prescriptions it was found to be mistaken for *Pulvis opii*.

PULVIS CRETÆ COMPOSITUS.

COMPOUND POWDER OF CHALK.

Pulvis cretæ compositus, P. L. 1787. *Pulvis e bolo compositus sine opio*. *Species e scordio sine opio*, P. L. 1745. *Diascordium*, P. L. 1720.

Take of Prepared Chalk, half a pound.

Cinnamon Bark, four ounces.

Tormentil Root,

Acacia Gum, of each three ounces.

Long Pepper, half an ounce.

Reduce them separately into a very fine powder, and then mix.

It may be here observed that the former compound powder of crabs claws has been omitted, as having no advantage over, or in fact differing from, the prepared oyster-shells, and for the same reason the crabs claws themselves have been omitted in the list of *Materia Medica*.

PULVIS CRETÆ COMPOSITUS CUM
OPIO.

COMPOUND POWDER OF CHALK WITH OPIUM.

Pulvis cretæ compositus cum opio, P. L. 1787, *Pulvis e bolo compositus cum opio*. *Species e scordio cum opio*, P. L. 1745.

Take of compound Powder of Chalk, six
ounces and a half.

Hard Opium powdered, four
scruples.

Mix.

The utility of this may be deduced from the frequent employment in practice of the former compound of the same name. Independent of the action of the chalk and astringents, the Opium is much divided, and can thus be given in smaller doses than ordinary balances in the shops are calculated to weigh by itself; the proportion of opium is somewhat increased from that contained in the preparation of the former Pharmacopœia; that was 1 in 43, this is 1 in 40.

PULVIS IPECACUANHÆ
COMPOSITUS.

COMPOUND POWDER OF IPECACUANHA.

Pulvis ipecacuanhæ compositus, P. L. 1787.

Take of Ipecacuanha Root powdered,
Hard Opium powdered, of each a
drachm.
Sulphate of Potass powdered, an
ounce.

Mix.

This useful compound was formerly named *Dovers Powder*,
and was first introduced into the Pharmacopœia of 1787.

PULVIS KINO COMPOSITUS.

COMPOUND POWDER OF KINO.

Take of Kino, fifteen drachms.
Cinnamon Bark, half an ounce.
Hard Opium, a drachm.

Reduce them separately to a very fine
powder; and then mix.

This astringent powder is now first introduced; the proportion of Opium it contains is 1 in 20.

PULVIS SCAMMONEÆ COMPOSITUS.

COMPOUND POWDER OF SCAMMONY.

Pulvis scammonii compositus, P. L. 1787. Pulvis e scammonio compositus, P. L. 1745. Pulvis comitis Warwicensis, P. L. 1720.

Take of Scammony Gum Resin,
Hard Extract of Jalap, of each
two ounces.

Ginger Root, half an ounce.

Reduce them separately to a very fine powder; and then mix.

This powder stands as in the former Pharmacopœia, and differs materially from the Pulvis e Scammonio compositus of P. L. 1745, which was then intended to supply the place of the earl of Warwick's powder, and consisted of a mixture of 4 parts scammony and 3 parts of burnt hartshorn.

PULVIS SENNÆ COMPOSITUS.

COMPOUND POWDER OF SENNA.

Pulvis sennæ compositus, P. L. 1787. Pulvis e sena compositus, P. L. 1745. Pulvis diasenæ, P. L. 1720.

Take of Senna Leaves,

Supertartrate of Potass, of each
two ounces.

Scammony Gum Resin, half an
ounce.

Ginger Root, two drachms.

Reduce the scammony gum resin separately, the rest together, to a very fine powder; and then mix.

PULVIS TRAGACANTHÆ
COMPOSITUS.

COMPOUND POWDER OF TRAGACANTH.

Pulvis Tragacanthæ compositus, P. L. 1787. Pulvis e tragacantha compositus, P. L. 1745. Species Diatragacanthæ frigidaë, P. L. 1720.

Take of Tragacanth powdered,

Acacia Gum powdered,

Starch, of each an ounce and half.

Refined Sugar, three ounces.

Powder the starch and sugar together; then add the tragacanth and acacia gum, and mix the whole.

Tragacanth is very difficultly reducible to powder without addition. Ten grains of this compound renders a bulk of two fluidounces of liquid as thick as can be conveniently taken.

PILULÆ.

PILLS.

THE consistence of pills is best preserved by keeping the mass in bladders and occasionally moistening it. In the direction of masses to be thus divided the proper consistence is not only to be looked to at first, but also its preservation afterwards; for if the mass on keeping become hard and dry it is unfit for that division for which it was originally intended; and this is in many instances such an objection to the form, that it is doubtful whether for the purposes of the Pharmacopœia the greater number of articles had not better be kept in powder, and their application to the formation of pills left to extemporaneous direction.

PILULÆ ALOËS COMPOSITÆ.

COMPOUND ALOËTIC PILLS.

Pilulæ Aloës compositæ, P. L. 1787.

Take of Extract of Spike Aloë powdered,
an ounce.

Extract of Gentian, half an ounce.

Oil of Carraway, forty minims.

Syrup, as much as is sufficient.

Beat them together, until they form a uniform mass.

PILULÆ ALOËS CUM MYRRHA.

ALOËTIC PILLS WITH MYRRH.

Pilulæ aloës cum myrrha, P. L. 1787. Pilulæ Rufi, P. L. 1745. Pilulæ Ruffi seu communes, P. L. 1720.

Take of Extract of Spike Aloë, two ounces.

Saffron,

Myrrh, of each an ounce.

Syrup, as much as is sufficient.

Powder the aloë and myrrh separately; then beat them all together until they form an uniform mass.

These pills are of long standing in medicine, and are clearly described by Rhazis, the Arabian, who ascribes the original form to Rufus after whom they were first named. The proportions remain the same as in the two last Pharmacopœiæ, but common syrup is now directed instead of syrup of saffron.

PILULÆ CAMBOGIÆ COMPOSITÆ.

COMPOUND CAMBOGE PILLS.

Take of Camboge powdered,

Extract of Spike Aloë powdered,

Compound Cinnamon Powder, of
each a drachm.

Hard Soap, two drachms.

Mix the powders together; then, having added the soap, beat the whole together until they are thoroughly incorporated.

These pills are now first introduced as forming a more active common purgative pill than that which precedes them, and in this way supplying an article very frequently necessary in practice.

PILULÆ FERRI CUM MYRRHA.

PILLS OF IRON AND MYRRH.

Take of Myrrh powdered, two drachms.

Subcarbonate of Soda,

Sulphate of Iron,

Sugar, of each a drachm.

Rub the myrrh with the subcarbonate of

soda; add the sulphate of iron and rub them again; then beat the whole together until they are thoroughly incorporated.

It has been considered proper to give directions for the preparation of this common medicine in a solid form, as well as in that of mixture, and the moist sugar with which it is made will preserve it of a proper consistence.

PILULÆ GALBANI COMPOSITÆ.

COMPOUND GALBANUM PILLS.

Pilulæ Galbani compositæ, P. L. 1787. *Pilulæ gummosæ*,
P. L. 1745. P. L. 1720.

Take of Galbanum Gum-resin, an ounce.

Myrrh,

Sagapenum, of each an ounce and
half.

Assafoetida Gum-resin, half an
ounce.

Syrup, as much as is sufficient.

Beat them together until they form a uniform mass.

The present differs from the former formula in the omission of the Opoponax, and its quantity is made up for by increasing the proportions of the Myrrh and Sagapenum. Every succeeding Pharmacopœia has diminished the number of ingredients of this pill, and that of 1745 first consolidated the *Pilulæ foetidæ* and *Pilulæ gummosæ* into one.

PILULÆ HYDRARGYRI.

MERCURIAL PILLS.

Pilulæ Hydrargri, P. L. 1787. Pilulæ mercuriales,
P. L. 1745.

Take of Purified Mercury by weight, two
drachms.

Confection of Red Roses, three
drachms.

Liquorice Root powdered, a
drachm.

Rub the mercury with the confection, until
the globules disappear; then add the liquorice
root, and beat the whole together until they
are thoroughly incorporated.

The mercurial pill, often from its colour called the *blue pill*, is one of those established forms which it has not been thought proper to alter in any way. The complete extinction of the mercury is certainly matter of difficulty, but it must be fully accomplished before the addition of the liquorice powder, and can be best judged of by rubbing a small portion thinly on paper with the finger, and examining by a magnifying glass if any globules of the metal are still visible. Some have thought that the process might have been shortened by adding some unctuous substance, as manna, or that even the turpentine would not here be liable to the same objections as when others are added to ointment.

PILULÆ HYDRARGYRI
SUBMURIATIS.

PILLS OF SUBMURIATE OF MERCURY.

Take of Submuriate of Mercury,
Precipitated Sulphuret of Anti-
mony, of each a drachm.
Guaiacum Gum-resin powdered,
two drachms.

Rub the Submuriate of Mercury first with
the precipitated Sulphuret of Antimony,
then with the Guaiacum Gum-resin, and add
as much Copaiba as may be requisite to give
the mass a proper consistence.

These directions are introduced, because the subject of
them is in very general use as an alterative Pill. The com-
bination was first recommended by Dr. Plummer in the
Edinburgh Medical Essays.

PILULÆ SAPONIS CUM OPIO.

PILLS OF SOAP AND OPIUM.

Pilula opii, P. L. 1787. *Pilula saponaceæ*. *Pilula e styrace*,
P. L. 1745. *Laudanum*, P. L. 1720.

Take of hard Opium powdered, half an
ounce.

Hard Soap, two ounces.

Beat them together, until they are thoroughly incorporated.

This is substituted for the former *Pilulæ Opii*, in which opium was mixed with the same proportion of extract of liquorice. That composition, if long kept, grew hard, and pills made of it have been very often found to pass the intestinal canal undissolved. Soap, therefore, to which the same objection does not apply, has been substituted for the Extracts as was formerly done in the *Pharmacopœia* of 1745, under the name of *Pilulæ Saponacæ*. In that formula, too, the taste of the soap was covered by the addition of essential oil of lemon, which has not now been thought necessary.

PILULÆ SCILLÆ COMPOSITÆ.

COMPOUND SQUILL PILLS.

Pilulæ Scillæ, P. L. 1787.

Take of Squill Root fresh dried and powdered, a drachm.

Ginger Root powdered,

Hard Soap, of each three drachms.

Ammoniacum powdered, two drachms.

Mix the powders together ; then beat them with the soap, adding as much syrup as may be sufficient to give a proper consistence.

These differ only in name from the former squill pills, and the propriety of that alteration is evident from the substances which enter into their composition. Perhaps the ammoniac might have been increased in its proportion, to a more efficient dose.

PRÆPARATA EX ANIMALIBUS.

PREPARATIONS FROM ANIMALS.

ADEPS PRÆPARATA.

PREPARED LARD.

Adeps suilla præparata, P. L. 1787. Axungia porcina curata, P. L. 1745.

CUT the lard into pieces; melt it then over a slow fire, and press it through a linen cloth.

If water be used in this purification of lard, or that of suet, they become rancid much sooner.

CORNU USTUM.

BURNT HARTSHORN.

Cornu cervi ustum, P. L. 1787. Cornu cervi calcinatum, P. L. 1745. Cornu cervinum ustum, P. L. 1720.

Burn pieces of hartshorn in an open fire until they are thoroughly white; then pow-

der them, and prepare them in the manner directed for the preparation of chalk.

Hartshorn is too expensive an animal bone to be employed for the common preparations of Ammonia, for which purpose the bones, which are the refuse of the streets, are used; and if after distillation they be further burnt in an open fire, the residue in each instance will be the same, and chiefly phosphate of lime. Hartshorn, however, affords that particular modification of bone to which the preference is given for the purposes of pharmacy, and the consumption is not so great as to render the direction either too expensive or difficult to be complied with. The phosphate of lime left amounts to 57,5 of the bones employed; they appear also to contain a small quantity of carbonate of lime and phosphate of magnesia, and the remainder is animal matter, which passes away in various compound gasses under the circumstances in which it is in this preparation directed to be placed.

SEVUM PRÆPARATUM.

PREPARED SUET.

Sevum ovillum præparatum, P. L. 1787. Sevum ovillum curatum, P. L. 1745.

Cut the suet into pieces; then melt it over a slow fire, and press it through a linen cloth.

SPONGIA USTA.

BURNT SPONGE.

Spongia usta, P. L. 1787. P. L. 1745.

Cut the sponge into pieces, and beat it that any extraneous adherent matters may be separated; then burn it in a close iron vessel until it becomes black and friable; lastly rub it to a very fine powder.

Burnt sponge appears practically to produce effects which no mixture of the alkali and charcoal does, especially in the removal of bronchocele; and it is therefore retained.

TESTÆ PRÆPARATÆ.

PREPARED SHELLS.

Testæ ostreorum præparatæ, P. L. 1787. P. L. 1745.

Having first cleared the shells from extraneous matters, wash them with boiling water; then prepare them in the manner directed for the preparation of chalk.

Oyster shells form the only immediate animal carbonate of lime now retained in the Pharmacopœia, the crabs-claws

and red coral, which possess no superiority whatever, being omitted. They have an advantage over the mineral carbonates of lime, especially chalk, in being purer. With the other carbonates, the compounds of them, as the *Pulvis chelarum cancri compositus*, which was formerly celebrated under the name of Gascoign's Powder, are also omitted, and the oyster shells are considered as equivalent to the whole.

EMPLASTRA.

PLASTERS.

PLASTERS are composed of unctuous substances, united either to powders, or metallic oxyds, &c. They ought to be of such a consistence as not to stick to the fingers when cold, but to become soft, so as to be spread out, in a moderate degree of heat, and to continue tenacious enough to adhere to the skin in that of the human body. They owe their consistence either to metallic oxyds, especially those of lead, or to wax, rosin, &c. Plasters are usually kept in rolls wrapped in paper, and spread, when wanted for use, upon thin leather; if the plaster be not of itself sufficiently adhesive, it is to be surrounded at its margin by a boundary of resin plaster.

EMPLASTRUM AMMONIACI.

AMMONIACUM PLASTER.

Take of purified Ammoniacum, five ounces.
Acetic Acid, half a pint.

Dissolve the ammoniacum in the acid, then evaporate the liquor in an iron vessel

by means of a water bath, constantly stirring it until it acquires a proper consistence.

This plaster is now first introduced; it adheres well to the skin without irritating it, and without producing inconvenience by its smell.

EMPLASTRUM AMMONIACI CUM HYDRARGYRO.

AMMONIACUM PLASTER WITH MERCURY.

Emplastrum ammoniaci cum hydrargyro, P. L. 1787. Emplastrum ex ammoniaco cum mercurio, P. L. 1745.

Take of Purified Ammoniacum, a pound.
Purified Mercury *by weight*, three
ounces.

Sulphurated Oil, a fluidrachm.

Rub the mercury with the sulphurated oil until the globules disappear; then add by degrees the ammoniacum, previously melted, and mix the whole together.

EMPLASTRUM CERÆ.

WAX PLASTER.

Emplastrum ceræ, P. L. 1787. Emplastrum attrahens, P. L. 1745. Emplastrum de meliloto simplex, P. L. 1720.

Take of Yellow Wax,
Prepared Suet, of each three
pounds.
Yellow Resin, a pound.

Melt them together, and strain.

Blisters are sometimes dressed with this plaster for the purpose of promoting a discharge.

EMPLASTRUM CUMINI.

CUMIN PLASTER.

Emplastrum cumini, P. L. 1787. Emplastrum e cymino, P. L. 1745. P. L. 1720.

Take of Cumin Seeds,
Carraway Seeds,
Bay Berries, of each three ounces.
Dried Pitch, three pounds.
Yellow Wax, three ounces.

Having melted the dried pitch and wax together, add the remaining articles previously powdered, and mix.

EMPLASTRUM GALBANI COMPOSITUM.

COMPOUND GALBANUM PLASTER.

Emplastrum lithargyri compositum, P. L. 1787. Emplastrum commune cum gummi, P. L. 1745. Diachylon magnum cum gummi, P. L. 1720.

Take of Purified Galbanum Gum-resin,
eight ounces.

Lead Plaster, three pounds.

Common Turpentine, ten
drachms.

Resin of the Spruce Fir, powdered, three ounces.

Having melted the galbanum gum-resin with the turpentine, mix in first the powdered resin of the spruce fir, and then the lead plaster previously melted by a slow fire, and mix the whole.

EMPLASTRUM HYDRARGYRI.

MERCURIAL PLASTER.

Emplastrum lithargyri cum hydrargyro, P. L. 1787. Emplastrum commune cum mercurio, P. L. 1745. Emplastrum mercuriale, P. L. 1720.

Take of Purified Mercury, *by weight*, three ounces.

Sulphurated Oil, a fluidrachm.

Lead Plaster, a pound.

Rub the mercury with the sulphurated oil until the globules disappear; then add by degrees the lead plaster melted, and mix the whole.

The use of a small proportion of sulphurated oil diminishes the labour which is requisite for the extinction of the mercury, and in the preparation of a plaster any diminution of effect consequent thereupon need not be looked to, with so much care, as in other instances.

EMPLASTRUM LYTTEÆ.

BLISTERING FLY PLASTER.

Emplastrum cantharidis, P. L. 1787. *Emplastrum vesicatorium*, P. L. 1745.

Take of Blistering Flies in very fine powder, a pound.

Wax Plaster, a pound and half.

Prepared Lard, a pound.

Having melted the plaster and lard together, and removed them from the fire, a little before they become solid, sprinkle in the blistering flies, and mix the whole together.

This blistering plaster will be somewhat softer than the former, and will spread easily without requiring the use of an heated iron spatula, which if used too hot is often found to diminish its effect, and ought therefore to be omitted altogether.

EMPLASTRUM OPII.

PLASTER OF OPIUM.

Take of Hard Opium powdered, half an ounce.

Resin of the Spruce Fir, powdered, three ounces.

Lead Plaster, a pound.

Having melted the plaster, mix in the resin of the spruce fir and opium, and mix the whole.

As opium produces somewhat, though a smaller degree, of its specific effect when applied externally, and as a plaster of this sort is often required by practitioners, it has been thought right to introduce it.

EMPLASTRUM PICIS COMPOSITUM.**COMPOUND PITCH PLASTER.**

Emplastrum picis burgundicæ, P. L. 1787. *Emplastrum cephalicum*, P. L. 1745. P. L. 1720.

Take of dried Pitch, two pounds.

Resin of the Spruce Fir, a pound.

Yellow Resin,

Yellow Wax, of each four ounces.

Expressed Oil of Nutmegs, an ounce.

Having melted together the pitch, resin, and wax, add first the resin of the spruce fir, then the oil of nutmegs, and mix the whole together.

EMPLASTRUM PLUMBI.**LEAD PLASTER.**

Emplastrum lithargyri, P. L. 1787. *Emplastrum commune*, P. L. 1745. *Diachylon simplex*, P. L. 1720.

Take of semi-vitreous Oxyd of Lead in very fine powder, five pounds.

Olive Oil, a gallon.

Water, two pints.

Boil them together over a slow fire, constantly stirring, until the oil and oxyd of lead unite into the consistence of a plaster. But it will be proper to add a little more boiling water, if the water which was employed in the beginning shall be nearly consumed before the end of the process.

This plaster was originally called *Emplastrum diachylon*, but then its form was more complicated. Its preparation is of great importance, as it forms the basis, by additions to which so many other plasters are prepared. The water is necessary to moderate the heat, and prevent the oil from burning and growing black, and if more water be required it must be added boiling, or it will be apt to fly about. Constant stirring is also necessary to prevent the mass from swelling suddenly and running over the sides of the vessel.

EMPLASTRUM RESINÆ.

RESIN PLASTER.

Emplastrum lithargyri cum resina, P. L. 1787. *Emplastrum commune adhæsivum*, P. L. 1745. P. L. 1720.

Take of Yellow Resin, half a pound.

Lead Plaster, three pounds.

Having melted the lead plaster over a slow fire, add the resin in powder, and mix.

EMPLASTRUM SAPONIS.

SOAP PLASTER.

Emplastrum saponis, P. L. 1787. Emplastrum e sapone,
P. L. 1745. P. L. 1720.

Take of Hard Soap sliced, half a pound.

Lead Plaster, three pounds.

Having melted the plaster, mix in the soap; then boil it down to a proper consistence.

This mass must be formed into rolls when it begins to thicken, for afterwards, although it be still somewhat soft, it loses its tenacity, and will break to pieces; hence it should be stirred while it cools, in order that the whole may be cooled equally.

C E R A T A.

CERATES.

CERATES take their name from the wax which enters into their composition, and to which they owe their consistence. This should be intermediate between that of plasters and that of ointments; though no very definite rule of this sort is in fact, either given or observed.

C E R A T U M.

CERATE.

Take of Olive Oil, four fluidounces.

Yellow Wax, four ounces.

Having melted the wax, mix in the oil.

CERATUM CALAMINÆ.

CALAMINE CERATE.

Ceratum lapidis calaminaris, P. L. 1787. Ceratum epuloticum,
P. L. 1745.

Take of prepared Calamine,

Yellow Wax, of each, half a pound.

Olive Oil, a pint.

Stir the oil in the melted wax; then remove it from the fire, and, as soon as it begins to thicken, add the calamine, and stir it constantly, until the mixture becomes cold.

A composition of this kind was first introduced and long used under the name of *Turner's Cerate*.

CERATUM CETACEI.

SPERMACETI CERATE.

Ceratum spermatis ceti, P. L. 1787. Ceratum album, P. L. 1745.

Take of Spermaceti, half an ounce.

White Wax, two ounces.

Olive Oil, four fluidounces.

Add the oil to the spermaceti and wax previously melted together, and stir until the mixture becomes cold.

CERATUM LYTTÆ.

CERATE OF BLISTERING FLY.

Ceratum Cantharidis, P. L. 1787.

Take of Spermaceti Cerate, six drachms.

Blistering Flies, in very fine powder, a drachm.

Having softened the cerate by heat, add the flies, and mix them together.

CERATUM PLUMBI SUPERACETATIS.

CERATE OF SUPERACETATE OF LEAD.

Unguentum cerussæ acetatæ, P. L. 1787.

Take of Superacetate of Lead powdered,
two drachms.

White Wax, two ounces.

Olive oil, half a pint.

Dissolve the wax in seven fluidounces of oil, then gradually add thereto the superacetate of lead, separately rubbed down with the remaining oil, and stir the mixture with a wooden slice, until the whole has united.

CERATUM PLUMBI COMPOSITUM.

COMPOUND LEAD CERATE.

Ceratum lithargyri acetati compositum, P. L. 1787.

Take of Solution of Acetate of Lead, two
fluidounces and a half.

Yellow Wax, four ounces.

Olive Oil, nine fluidounces.

Camphor, half a drachm.

Mix the wax, previously melted, with eight fluidounces of the oil, then remove it from the fire, and, when it begins to thicken, add gradually the solution of acetate of lead, and constantly stir the mixture with a wooden slice, until it gets cold. Lastly, mix in the camphor, previously dissolved in the remainder of the oil.

CERATUM RESINÆ.

RESIN CERATE.

Ceratum resinæ flavæ, P. L. 1787. Ceratum citrinum,
P. L. 1745.

Take of Yellow Resin,

Yellow Wax, of each a pound.

Olive Oil, a pound.

Melt the resin and wax together over a slow fire, then add the oil, and strain the cerate while hot through a linen cloth.

CERATUM SABINÆ.

SAVINE CERATE.

Take of fresh Leaves of Savine, bruised, a pound.

Yellow Wax, half a pound.

Prepared Lard, two pounds.

Having melted together the wax and lard, boil therein the savine leaves, and strain through a linen cloth.

This article is of late introduction, for the purpose of keeping up a discharge from blistered surfaces. It was first described by Mr. Crowther (*Observations on White Swelling*, 1797), and has since been received into extensive use, because it does not produce the inconveniences that follow the constant application of the common blistering cerate. A thick white layer forms daily upon the part which requires to be removed, that the cerate may be applied immediately to the surface from which the discharge is to be made. It also sometimes produces great irritation in its full strength, and requires to be lowered by some mild ointment.

CERATUM SAPONIS.

SOAP CERATE.

Ceratum Saponis, P. L. 1787.

Take of Hard Soap, eight ounces.

Yellow Wax, ten ounces.

Semi-vitreous Oxyd of Lead, powdered, a pound.

Olive Oil, a pint.

Vinegar, a gallon.

Boil the vinegar with the oxyd of lead over a slow fire, constantly stirring, until the union is complete; then add the soap, and boil it again in a similar manner, until the water is entirely evaporated, then mix in the wax previously melted with the oil.

UNGUENTA.

OINTMENTS.

THE usual consistence of Ointments is about that of Butter.

UNGUENTUM CETACEI.

OINTMENT OF SPERMACETI.

Unguentum spermaceti, P. L. 1787. Linimentum album
P. L. 1745.

Take of Spermaceti, six drachms.

White Wax, two drachms.

Olive Oil, three fluidounces.

Having melted them together, over a slow fire, constantly stir the mixture until it gets cold.

U N G U E N T U M E L E M I C O M P O S I T U M .

COMPOUND OINTMENT OF ELEMI. .

Unguentum elemi compositum, P. L. 1787. Unguentum e gummi elemi, P. L. 1745. Unguentum e gummi elemi sive Linimentum Arcæi, P. L. 1720.

Take of Elemi, a pound.

Common Turpentine, ten ounces.

Prepared Suet, two pounds.

Olive Oil, two fluidounces.

Melt the elemi with the suet; then remove it from the fire, and immediately mix in the turpentine and oil; then strain the mixture through a linen cloth.

U N G U E N T U M H Y D R A R G Y R I F O R T I U S .

STRONG MERCURIAL OINTMENT.

Unguentum hydrargyri fortius, P. L. 1787. Unguentum cæruleum fortius, P. L. 1745.

Take of purified Mercury *by weight*, two pounds.

Prepared Lard, twenty-three ounces.

Prepared Suet, an ounce.

First rub the mercury with the suet and a little of the lard, until the globules disappear; then add the remainder of the lard, and mix.

The labour which attends the preparation here directed has not been overlooked by the college; and all the modes by which that labour is sometimes diminished have been considered, and tried in various ways. These it is not necessary to enumerate, but the result has been a determination to abide by the established form.

UNGUENTUM HYDRARGYRI MITIUS.

MILD MERCURIAL OINTMENT.

Unguentum hydrargyri mitius, P. L. 1787. Unguentum cæruleum mitius, P. L. 1745.

Take of strong Mercurial Ointment, a
pound.

Prepared Lard, two pounds.

Mix.

UNGUENTUM HYDRARGYRI NITRATI.

OINTMENT OF NITRATE OF MERCURY.

Unguentum hydrargyri nitrati, P. L. 1787.

Take of purified Mercury by weight, an ounce.

Nitric Acid, two fluidounces.

Prepared Lard, six ounces.

Olive Oil, four fluidounces.

First dissolve the mercury in the acid; then, while the liquor is hot, mix it with the lard and oil melted together.

In its consistence this ointment will be softer than the former of the same name, by the substitution of olive oil for a portion of the lard. Some practitioners have strongly recommended the use of butter for the same purpose.

UNGUENTUM HYDRARGYRI NITRICO-OXYDI.

OINTMENT OF NITRIC OXYD OF MERCURY.

Take of Nitric Oxyd of Mercury, an ounce.

White Wax, two ounces.

Prepared Lard, six ounces.

Having melted together the wax and lard, add thereto the nitric oxyd of mercury in very fine powder, and mix.

UNGUENTUM HYDRARGYRI PRÆCIPITATI ALBI.

OINTMENT OF WHITE PRECIPITATE OF
MERCURY.

Unguentum calcis hydrargyri alba, P. L. 1787. Unguentum
e mercurio præcipitato albo, P. L. 1745.

Take of White Precipitate of Mercury, a
drachm.

Prepared Lard, an ounce and half.

Having melted the lard over a slow fire, add the precipitated mercury, and mix.

UNGUENTUM PICIS ARIDÆ.

PITCH OINTMENT.

Unguentum basilicum nigrum vel tetrapharmacum,
P. L. 1745.

Take of Pitch,

Yellow Wax,

Yellow Resin, of each nine ounces.

Olive Oil, a pint.

Melt them together, and strain the mixture through a linen cloth.

This ointment was omitted in the last Pharmacopœia, and is again restored from that of 1745, as being still in frequent use.

UNGUENTUM PICIS LIQUIDÆ.

TAR OINTMENT.

Unguentum picis, P. L. 1787. Unguentum e pice,
P. L. 1745.

Take of Tar,

Prepared Suet, of each a pound.

Melt them together, and strain the mixture through a linen cloth.

UNGUENTUM SAMBUCI.

ELDER OINTMENT.

Unguentum sambuci, P. L. 1787. Unguentum sambucinum, P. L. 1745. P. L. 1720.

Take of Elder Flowers,

Prepared Lard, of each two pounds.

Boil the elder flowers in the lard until they become crisp; then strain the ointment through a linen cloth.

UNGUENTUM SULPHURIS.

SULPHUR OINTMENT.

Unguentum sulphuris, P. L. 1787. *Unguentum e sulphure*,
P. L. 1745.

Take of Sublimed Sulphur, three ounces.

Prepared Lard, half a pound.

Mix.

The proportion of sulphur here directed is to the lard as 3 to 6; in the former Pharmacopœia it was as 4 to 6, which was not tenacious enough to be conveniently rubbed on.

UNGUENTUM SULPHURIS COMPOSITUM.

COMPOUND SULPHUR OINTMENT.

Take of Sublimed Sulphur, half a pound.

White Hellebore Root powdered,
two ounces.

Nitrate of Potass, a drachm.

Soft Soap, half a pound.

Prepared Lard, a pound and
half.

Mix.

This active ointment is introduced as a more efficacious remedy for Psora than the common sulphur ointment. In the army, where it is generally used, the sulphur vivum, or native admixture of sulphur with various heterogeneous matters, is directed instead of sublimed sulphur.

UNGUENTUM VERATRI.

WHITE HELLEBORE OINTMENT.

Unguentum hellebori albi, P. L. 1787.

Take of White Hellebore Root powdered,
two ounces.

Prepared Lard, eight ounces.

Oil of Lemons, twenty minims.

Mix.

UNGUENTUM ZINCI.

ZINC OINTMENT.

Take of Oxyd of Zinc, an ounce.

Prepared Lard, six ounces.

Mix.

This ointment has been long usefully applied in practice, but is now for the first time received into the Pharmacopœia.

LINIMENTA.

LINIMENTS.

THE usual consistence of Liniments is little more than that of common oil.

LINIMENTUM ÆRUGINIS.

LINIMENT OF VERDIGRIS.

Oxymel æruginis, P. L. 1787. Mel Ægyptiacum, P. L. 1745. Unguentum Ægyptiacum, P. L. 1720.

Take of Verdigris powdered, an ounce.

Vinegar, seven fluidounces.

Clarified Honey, fourteen ounces.

Dissolve the verdigris in the vinegar, and strain it through a linen cloth; then, having added the honey gradually, boil it down to a proper consistence.

This preparation, as being only intended for external use, has been on this account transferred to its present situation.

LINIMENTUM AMMONIÆ FORTIUS.

STRONG LINIMENT OF AMMONIA.

Linimentum ammoniæ fortius, P. L. 1787.

Take of Solution of Ammonia, a fluid-
ounce.

Olive Oil, two fluidounces.

Shake them together, until they unite.

The term *strong* liniment is still retained that it may not be confounded with the former liniment of ammonia, which is the present liniment of carbonate of ammonia.

LINIMENTUM AMMONIÆ
CARBONATIS.

LINIMENT OF CARBONATE OF AMMONIA.

Linimentum ammoniæ, P. L. 1787. Linimentum volatile
P. L. 1745.

Take of Solution of Carbonate of Ammonia, a fluidounce.

Olive Oil, three fluidounces.

Shake them together, until they unite.

LINIMENTUM CAMPHORÆ.

CAMPHOR LINIMENT.

Take of Camphor, half an ounce.

Olive Oil, two fluidounces.

Dissolve the camphor in the oil.

This is a simple solution of camphor in oil, which readily dissolves it. The same solution also affords a useful method of giving camphor internally in a liquid form by rubbing it in this state first with mucilage, and then adding any aqueous vehicle. One drachm of the oil contains as thus prepared 15 grains of camphor.

LINIMENTUM CAMPHORÆ
COMPOSITUM.

COMPOUND CAMPHOR LINIMENT.

Linimentum camphoræ compositum, P. L. 1787.

Take of Camphor, two ounces.

Solution of Ammonia, six fluid-
ounces.

Spirit of Lavender, a pint.

Mix the solution of ammonia with the spirit in a glass retort; then, by the heat of a slow fire, distil a pint. Lastly, in this distilled liquor dissolve the camphor.

LINIMENTUM HYDRARGYRI.
MERCURIAL LINIMENT.

Take of Strong Mercurial Ointment,
Prepared Lard, of each four
ounces.

Camphor, an ounce.

Rectified Spirit, fifteen minims.

Solution of Ammonia, four fluid-
ounces.

First powder the camphor with the addition of the spirit, then rub it with the mercurial ointment and the lard; lastly, add gradually the solution of ammonia, and mix the whole together.

This combination requires that the camphor should be powdered by the smallest possible quantity of spirit, and if the other substances be added in the manner directed in the text, it will form a mass of uniform consistence without separating; and it will be considerably thicker than the other liniments are. It is a useful combination for the discussion of indolent swellings or collections of fluid; but if it be frequently or largely applied, it will affect the mouth more rapidly than the mercurial ointment will.

LINIMENTUM SAPONIS
COMPOSITUM.

COMPOUND SOAP LINIMENT.

Linimentum saponis compositum, P. L. 1787. Linimentum saponaceum, P. L. 1745.

Take of Hard Soap, three ounces.

Camphor, an ounce.

Spirit of Rosemary, a pint.

Dissolve the camphor in the spirit, then add the soap, and macerate in the heat of a sand bath, until it be melted.

The basis of this form was first proposed by Riverius, (*Prax.* s. 16. c. 2.) and it is now commonly used under the name of *Opodeldoc*.

LINIMENTUM TEREBINTHINÆ.

TURPENTINE LINIMENT.

Take of Resin Cerate, a pound.

Oil of Turpentine, half a pint.

Add the oil of turpentine to the cerate previously melted, and mix.

This liniment is introduced because it is very commonly applied to burns : it owes its first introduction into practice for this purpose to Mr. Kentish of Newcastle.

CATAPLASMATA.

CATAPLASMS.

CATAPLASMA FERMENTI.

YEST CATAPLASM.

TAKE of Flour, a pound.

Yest, half a pint.

Mix, and expose to a gentle heat until the mixture begins to rise.

CATAPLASMA SINAPIS.

MUSTARD CATAPLASM.

Cataplasma sinapeos, P. L. 1787.

Take of Mustard Seed,

Linseed, of each powdered, half a pound.

Boiling Vinegar, as much as is sufficient.

Mix, until it acquires the consistence of a cataplasm.

TABLE

SHEWING

IN WHAT PROPORTION OPIUM AND CERTAIN PREPARATIONS OF ANTIMONY, ARSENIC, AND MERCURY, ARE CONTAINED IN SOME COMPOUND MEDICINES.

CONFECTIO OPII (*Confection of Opium*), in about thirty-six grains contains one grain of opium.

LIQUOR ANTIMONII TARTARIZATI (*Solution of tartarized Antimony*), in a fluid-ounce contains two grains of tartarized antimony.

LIQUOR ARSENICALIS (*Arsenical Solution*), in a fluidounce contains four grains of oxyd of arsenic.

LIQUOR HYDRARGYRI OXYMURIATIS (*Solution of Oxymuriat of Mercury*), in a fluid-ounce contains half a grain of oxymuriat of mercury.

PILULÆ HYDRARGYRI (*Mercurial Pills*), in three grains contain one grain of mercury.

PILULÆ HYDRARGYRI SUBMURIATIS (*Pills of Submuriat of Mercury*), in about five grains contain one grain of submuriat of mercury.

PILULÆ SAPONIS CUM OPIO (*Soap Pills with Opium*), in five grains contain one grain of opium.

PULVIS CORNU USTI CUM OPIO (*Powder of burnt Hartshorn with Opium*), in ten grains contains one grain of opium.

PULVIS CRETÆ COMPOSITUS CUM OPIO (*Compound Powder of Chalk with Opium*), in two scruples contains one grain of opium.

PULVIS IPECACUANHÆ COMPOSITUS (*Compound Powder of Ipecacuanha*), in ten grains contains one grain of opium.

PULVIS KINO COMPOSITUS (*Compound Powder of Kino*), in one scruple contains one grain of opium.

UNGUENTUM HYDRARGYRI FORTIUS (*Strong Mercurial Ointment*), in two drachms contains one drachm of mercury.

UNGUENTUM HYDRARGYRI MITIUS (*Mild Mercurial Ointment*), in six drachms contains one drachm of mercury.

TABLE

OF NEW NAMES,

SHOWING TO WHAT NAME OF THE FORMER PHARMACOPŒIA
EACH RESPECTIVELY BELONGS.

NEW NAMES.	FORMER NAMES.
	A.
Abietis Resina.	Thus.
Absinthium.	Absinthium vulgare.
Acaciæ Gummi.	Arabicum Gummi.
Acetosa.	Acetosa pratensis.
Acidum aceticum.	Acetum distillatum.
—— benzoïcum.	Flores Benzoës.
—— nitricum.	Acidum nitrosum.
—— sulphuricum.	—— vitriolicum.
Æther rectificatus.	Æther vitriolicus.
Aloës spicatæ Extractum.	Aloë socotorina, <i>Succus spissatus.</i>
—— vulgaris Extractum.	—— barbadensis, <i>Succus spissatus.</i>
Ammoniæ Murias.	Sal Ammoniacus.
—— Subcarbonas.	Ammonia præparata.
Anthemidis Flores.	Chamæmelum, <i>Flos simplex.</i>
Antimonii Sulphuretum.	Antimonium.
—— Sulphuretum præcipitatum	Sulphur Antimonii præcipitatum.
Argenti Nitras.	Argentum nitratum.

Armoraciæ Radix.

Raphanus rusticus, *Radix*.

B.

Benzöin.

Benzoë.

C.

Calami Radix.

Calamus aromaticus, *Radix*.

Calamina.

Lapis Calaminaris.

Calumbæ Radix.

Columba, *Radix*.

Cambogia.

Gambogia.

Canellæ Cortex.

Canella alba, *Cortex*.

Capsici Baccæ.

Piper indicum, *Capsula*.

Caryophylli.

Caryophyllus aromatica, *Pericarpium immaturum*.

Cassiae Pulpa.

Cassia fistularis, *Fructus*.

Castoreum.

Castoreum Rossicum.

Ceratum Plumbi compositum.

Ceratum Lithargyri acetati compositum.

————— Resinæ.

Unguentum Resinæ flavæ.

Cetaceum.

Sperma Ceti.

Cinchonæ lancifoliæ Cortex.

Cinchonæ Cortex.

————— cordifoliæ Cortex.

Vulgò Cortex flavus.

————— oblongifoliæ Cortex.

Vulgò Cortex ruber.

Coccus.

Coccinella.

Confectio Aurantii.

Conserva Aurantii Hispalensis Corticis exterioris.

Confectio Cassiæ.

Electuarium Cassiæ.

————— Opii.

Confectio opiata.

————— Rosæ caninæ.

Conserva Cynobasti.

————— Rosæ Gallicæ.

————— Rosæ.

————— Scammoneæ.

Electuarium Scammonii.

————— Sennæ.

————— Sennæ.

Conii Folia.

Copaiba.

Cupri Sulphas.

Cuspariæ Cortex.

Cydoniæ Semina.

Cicuta, *herba*.

Balsamum Copaiva.

Vitriolum cæruleum.

Vulgò Cortex Angusturæ.Cydonia malus, *Semen*.

D.

Decoctum Cydoniæ.

Mucilago Seminis Cydonii
— mali.———— Malvæ composi-
tum.

Decoctum pro Enemate.

———— Papaveris.

———— pro Fomento.

E.

Elaterii Poma.

Cucumis agrestis, *Fructus re-*
cens.

Emplastrum Ceræ.

Emplastrum Ceræ composi-
tum.———— Galbani composi-
tum.———— Lithargyri com-
positum.

———— Hydrargyri.

———— Lithargyri cum
Hydrargyro.———— Picis composi-
tum.———— Picis Burgundi-
cæ compositum.

———— Lyttæ.

———— Cantharidis.

———— Plumbi.

———— Lithargyri.

———— Resinæ.

———— Lithargyri cum
Resina.

F.

Ferri Sulphas.

Ferrum vitriolatum.

Ferrum ammoniatum.

———— ammoniacale.

Fœniculi Semina.

Fœniculum dulce, *Semen*.

H.

Hellebori foetidi Folia.	Helleboraster, <i>Folium</i> .
Hydrargyri Nitrico-oxydum.	Hydrargyrus nitratus ruber.
———— Oxydum rubrum.	———— calcinatus.
———— Oxymurias.	———— muriatus.
———— Submurias.	Calomelas.
———— Sulphuretum rubrum.	Hydrargyrus sulphuratus ruber.
Hydrargyrus præcipitatus albus.	Calx Hydrargyri alba.

J.

Jalapæ Radix.	Jalapium, <i>Radix</i> .
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L.

Linimentum Ammoniaë Carbonatis.	Linimentum Ammoniaë.
———— Æruginis.	Oxymel Æruginis.
Lini usitatissimi Semina.	Linum, <i>Semen</i> .
Liquor Aluminis compositus.	Aqua Aluminis composita.
———— Ammoniaë.	———— Ammoniaë puræ.
———— Ammoniaë Acetatis.	———— Ammoniaë acetatæ.
———— Antimonii tartarizati.	Vinum Antimonii tartarizati
———— Calcis.	Aqua Calcis.
———— Cupri ammoniati.	———— Cupri ammoniati.
———— Plumbi Acetatis.	———— Lithargyri acetati.
———— Plumbi Acetatis dilutus.	———— Lithargyri acetati composita.
———— Potassæ.	———— Kali puri.
Lytta.	Cantharis.

M.

Magnesia.	Magnesia usta.
Magnesia Carbonas.	———— alba.
———— Sulphas.	———— vitriolata.
Marrubium.	Marrubium album.
Mentha piperita.	Mentha piperitis.
———— viridis.	———— sativa.
Menyanthes.	Trifolium paludosum.
Mistura Amygdalæ.	Lac Amygdalæ.
———— Ammoniacy.	—— Ammoniacy.
———— Assafœtidæ.	—— Asa fœtidæ.
———— Camphoræ.	Mistura camphorata.
———— Cretæ.	———— cretacea.
———— Guaiacy.	Lac Guaiacy.
———— Moschy.	Mistura moschata.

O.

Oleum æthereum.	Oleum Vini.
—— Succini.	—— Succini rectificatum.
Oxymel.	Mel acetatum.

P.

Papaveris somniferi Capsulæ.	Papaver album, <i>Capsula.</i>
Pilulæ Saponis cum Opio.	Pilulæ Opii.
—— Scillæ compositæ.	—— Scillæ.
Pix arida.	Pix burgundica.
Plumbi Superacetas.	Cerussa acetata.
—— Carbonas.	Cerussa.
—— Oxydumsemivitreum.	Lithargyrus.
Potassæ Acetas.	Kali acetatum.
Potassa cum Calce.	Calx cum Kali puro.
—— fusa.	Kali purum.

Potassa impura.	Cineres clavellati.
Potassæ Nitras.	Nitrum.
—— Subcarbonas.	Kali præparatum.
—— Tartras.	—— tartarizatum.
—— Sulphas.	—— vitriolatum.
—— Sulphuretum.	—— sulphuratum.
—— Supertartras.	Tartari Crystalli.
Pterocarpi Lignum.	Santalum rubrum, <i>Lignum.</i>
Pulvis Aloës compositus.	Pulvis Aloës cum Guaiaco.
—— Cinnamomi compositus.	—— aromaticus.
—— Cornu usti cum Opio.	—— opiatum.

R.

Rhœados Petala.	Papaver erraticum, <i>Flos.</i>
Rhamni Baccæ.	Spina cervina, <i>Bacca.</i>
Rhei Radix.	Rhabarbarum, <i>Radix.</i>
Rosæ caninæ Pulpa.	Cynosbatus, <i>Fructus.</i>
—— centifoliæ Petala.	Rosa damascena, <i>petalum.</i>
—— Gallicæ Petala.	—— rubra, <i>petalum.</i>

S.

Saccharum.	Saccharum non purificatum.
Scammoneæ Gummi-resina.	Scammonium, <i>Gummi-resina.</i>
Senegæ Radix.	Seneka, <i>Radix.</i>
Serpentariæ Radix.	Serpentaria virginiana, <i>Radix.</i>
Soda impura.	Barilla.
—— tartarizata.	Natron tartarizatum.
Sodæ Boras.	Borax.
—— Murias.	Sal muriaticus.
—— Sulphas.	Natron vitriolatum.
—— Subcarbonas.	—— præparatum.
Spartii Cacumina.	Genista, <i>Cacumen.</i>

Spiritus Camphoræ.

—— rectificatus.

—— tenuior.

Sulphur lotum.

—— sublimatum.

Syrupus Aurantii.

—— Limonis.

—— Papaveris.

—— Rhœados.

Spiritus camphoratus.

—— vinosus rectificatus.

—— vinosus tenuior.

Flores Sulphuris loti.

Sulphuris Flores.

Syrupus Corticis Aurantii.

—— Limonis succi.

—— Papaveris albi.

—— erratici.

T.

Terebinthina canadensis.

Balsamum canadense.

Tinctura Camphoræ compo-
sita.

Tinctura Opii camphorata.

—— Ferri Muriatis.

—— Ferri muriati.

V.

Veratri Radix.

Helleborus albus, *radix*.

Unguentum Picis liquidæ.

Unguentum Picis.

—— Cetacei.

—— Spermatidis Ceti.

Z.

Zinci Oxydum

Zincum calcinatum.

—— Sulphas.

—— vitriolatum.

TABLE

OF

FORMER NAMES.

SHEWING TO WHAT NAME OF THE PRESENT PHARMACOPŒIA
EACH RESPECTIVELY BELONGS.

FORMER NAMES.	NEW NAMES.
A.	
Absinthium vulgare.	Absinthium.
Acetosa pratensis.	Acetosa.
Acetum distillatum.	Acidum aceticum.
Acidum nitrosum.	—— nitricum.
—— vitriolicum.	—— sulphuricum.
Æther vitriolicus.	Æther rectificatus.
Aloë barbadensis.	Aloës vulgaris Extractum.
—— socotorina.	—— spicatæ Extractum.
Ammonia præparata.	Ammonia Carbonas.
Antimonium.	Antimonii Sulphuretum.
Aqua Aluminis composita.	Liquor Aluminis compositus.
—— Ammonia puræ.	—— Ammonia.
—— Ammonia acetatæ.	—— Ammonia Acetatis.
—— Calcis.	—— Calcis.
—— Cupri ammoniati.	—— Cupri ammoniati.
—— Lithargyri acetati.	—— Plumbi Acetatis.
—— Lithargyri acetati com- posita.	—— Plumbi Acetatis di- lutus.

Aqua Kali puri.
 Arabicum Gummi.
 Argentum nitratum.

Liquor Potassæ.
 Acaciæ Gummi.
 Argenti Nitræs.

B.

Balsamum canadense.
 ———— Copaiva.
 Barilla.
 Benzoë.
 Borax.

Terebinthina canadensis.
 Copaiba.
 Soda impura.
 Benzoinum.
 Sodæ Boras.

C.

Calamus aromaticus, *radix*.
 Calomelas.
 Calx cum Kali puro.
 ——— Hydrargyri alba.

 Canella alba, *cortex*.
 Cantharis.
 Caryophyllus aromatica, *pericarpium immaturum*.
 Cassia fistularis, *fructus*.
 Castoreum Rossicum.
 Ceratum Lithargyri acetati compositum.
 Cerussa.
 Cerussa acetata.
 Chamæmelum, *flos simplex*.
 Cicutæ, *herba*.
 Cinchona, *cortex*.
 ———— *flavus*.
 ———— *ruber*.

 Cineres clavellati.

Calami Radix.
 Hydrargyri Submurias.
 Potassa cum Calce.
 Hydrargyrus præcipitatus albus.
 Canellæ Cortex.
 Lytta.
 Caryophylli.

 Cassiæ Pulpa.
 Castoreum.
 Ceratum Plumbi compositum.

 Plumbi Carbonas.
 ——— Superacetas.
 Anthemidis Flores.
 Conii Folia.
 Cinchonæ lancifoliæ Cortex.
 ———— cordifoliæ Cortex.
 ———— oblongifoliæ Cortex.
 Potassa impura.

Coccinella.

Columba, *radix*.

Conserva Aurantii Hispalensis

Corticis exterioris.

———— Cynosbati.

———— Rosæ.

Confectio opiata.

Cortex Angusturæ.

Cucumis agrestis, *fructus recens*.Cydonia Malus, *semen*.Cynosbatus, *fructus*.

Coccus.

Calumbæ Radix.

Confectio Aurantii.

———— Rosæ caninæ.

———— Rosæ gallicæ.

———— Opii.

Cuspariæ Cortex.

Elaterii Poma.

Cydoniæ Semina.

Rosæ caninæ Pulpa.

D.

Decoctum pro Enemate.

———— Fomento.

Decoctum Malvæ compositum.

———— Papaveris.

E.

Electuarium Cassiæ.

———— Scammonii.

———— Sennæ.

———— Cantharidis.

———— Lithargyri.

———— Lithargyri cum

Resina.

Emplastrum Ceræ compositum.

———— Lithargyri compositum.

———— Lithargyri cum Hydrargyro.

———— Picis Burgundicæ compositum.

Confectio Cassiæ.

———— Scammonææ.

———— Sennæ.

———— Lyttæ.

———— Plumbi.

———— Resinæ.

Emplastrum Ceræ.

———— Galbani compositum.

———— Hydrargyri.

———— Picis compositum.

F.

Ferrum vitriolatum.
 ——— ammoniacale.
 Flores Benzoës.
 ——— Sulphuris loti.
 Fœniculum dulce, *semen*.

Ferri Sulphas.
 Ferrum ammoniatum.
 Acidum benzoicum.
 Sulphur lotum.
 Fœniculi Semina.

G.

Gambogia.
 Genista, *cacumen*.

Cambogia.
 Spartii Cacumina.

H.

Helleboraster, *folium*.
 Helleborus albus, *radix*.
 Hydrargyrus calcinatus.
 ——— muriatus.
 ——— nitratus ruber.
 ——— sulphuratus ru-
 ber.

Hellebori foetidi Folia.
 Veratri Radix.
 Hydrargyri Oxydum rubrum.
 ——— Oxymurias.
 ——— Nitrico-oxydum.
 ——— Sulphuretum ru-
 brum.

J.

Jalapium, *Radix*.

Jalapæ Radix.

K.

Kali acetatum.
 ——— purum.
 ——— præparatum.
 ——— sulphuratum.
 ——— tartarizatum.
 ——— vitriolatum.

Potassæ Acetas.
 Potassa fusa.
 Potassæ Subcarbonas.
 ——— Sulphuretum.
 ——— Tartras.
 ——— Sulphas.

L.

Lac Amygdalæ.

—— Ammoniacy.

—— Asa fœtidæ.

—— Guaiacy.

Lapis calaminaris.

Linimentum Ammoniæ.

Linum, *Semen*.

Lithargyrus.

Mistura Amygdalæ.

—— Ammoniacy.

—— Assafœtidæ.

—— Guaiacy.

Calamina.

Linimentum Ammoniæ Carbonatis.

Lini usitatissimi Semina.

Plumbi Oxydum semivitreum.

M.

Magnesia alba.

—— usta.

—— vitriolata.

Marrubium album.

Mel acetatum.

Mentha piperitis.

—— sativa.

Mistura camphorata.

—— cretacea.

—— moschata.

Mucilago Seminis Cydonii
mali.

Magnesiæ Carbonas.

Magnesia.

Magnesiæ Sulphas.

Marrubium.

Oxymel.

Mentha piperita.

—— viridis.

Mistura Camphoræ.

—— Cretæ.

—— Moschi.

Decoctum Cydoniæ.

N.

Natron præparatum.

—— tartarizatum.

—— vitriolatum.

Nitrum.

Sodæ Subcarbonas.

Soda tartarizata.

Sodæ Sulphas.

Potassæ Nitras.

O.

Oleum Succini rectificatum.

Oleum Succini.

Oxymel Æruginis.

Linimentum Æruginis.

P.

Papaver album, *Capsula*.Papaveris somniferi *Capsula*.Papaver erraticum, *Flos*.Rhœados *Petalæ*.

Pilulæ Opii.

Pilulæ Saponis cum Opio.

—— Scillæ.

—— Scillæ compositæ.

Pix burgundica.

Pix arida.

Pulvis Aloës cum Guaiaco.

Pulvis Aloës compositus.

—— aromaticus.

—— Cinnamomi compositus.

—— opiatum.

—— Cornu usti cum Opio.

R.

Raphanus rusticanus, *Radix*.Armoraciæ *Radix*.Rhabarbarum, *Radix*.Rhei *Radix*.Rosa damascena, *Petalum*.Rosæ centifoliæ *Petala*.—— rubra, *Petalum*.—— Gallicæ *Petala*.

S.

Saccharum non purificatum.

Saccharum.

Sal Ammoniacus.

Ammoniacæ *Murias*.

—— Cornu Cervi.

—— Carbonas.

—— muriaticus.

Sodæ *Murias*.

Santalum rubrum.

Pterocarpi *Lignum*.Scammonium, *Gummi-resina*.Scammoniacæ *Gummi-resina*.Seneca, *Radix*.Senegæ *Radix*.Serpentaria virginiana, *Radix*.Serpentariæ *Radix*.

Sperma Ceti.

Cetaceum.

Spina cervina, *Bacca*.Rhamni *Baccæ*.

Spiritus camphoratus.	Spiritus Camphoræ.
—— vinosus rectificatus.	—— rectificatus.
—— vinosus tenuior.	—— tenuior.
Sulphur Antimonii præcipita- tum.	Antimonii Sulphuretum præ- cipitatum.
Sulphuris Flores.	Sulphur sublimatum.
Syrupus Corticis Aurantii.	Syrupus Aurantii.
—— Limonis succi.	—— Limonis.
—— Papaveris albi.	—— Papaveris.
—— ——— erratici.	—— Rhœados.

T.

Tartari Crystalli.	Potassæ Supertartras.
Tinctura Opii camphorata.	Tinctura Camphoræ compo- sita.
—— Ferri muriati.	—— Ferri Muriatis.
Thus.	Abietis Resina.
Trifolium paludosum, <i>Herba</i> .	Menyanthes.

V.

Vinum Antimonii tartarizati.	Liquor Antimonii tartarizati.
Vitriolum cæruleum.	Cupri Sulphas.
Unguentum Picis.	Unguentum Picis liquidæ.
Unguentum Resinæ flavæ.	Ceratum Resinæ flavæ.
—— ——— Spermatidis Ceti.	Unguentum Cetacei.

Z.

Zincum calcinatum.	Zinci Oxydum.
—— vitriolatum.	—— Sulphas.

TABLE

OF

ARTICLES AND PREPARATIONS

INTRODUCED INTO THE PRESENT, WHICH WERE NOT IN
THE LAST PHARMACOPŒIA.

Acetum Colchici.	Cuprum ammoniatum.
Acidum citricum.	Cuspariæ Cortex.
Antimonii Oxydum.	
Arsenici Oxydum.	Decoctum Aloës compositum.
———— præpara-	———— Dulcamaræ.
tum.	———— Lichenis.
Aqua Carui.	———— Papaveris.
	———— Quercûs.
Belladonnæ Folia.	———— Senegæ.
	Dolichi Pubes.
Cajuputi Oleum.	Dulcamaræ Caulis.
Carbo Ligni.	
Cataplasma Fermenti.	Emplastrum Ammoniaci.
Ceratum.	———— Opii.
———— Resinæ flavæ.	Euphorbiæ Gummi resinæ.
———— Sabinæ.	Extractum Aconiti.
Cerevisiæ Fermentum.	———— Aloës.
Cinchonæ cordifoliæ Cortex.	———— Belladonnæ.
———— oblongifoliæ Cor-	———— Colocynthis.
tex.	———— Humuli.
Confectio Amygdalæ.	———— Hyoscyami.
———— Rutæ.	———— Opii.

Extractum Rhei.

———— Sarsaparillæ.

———— Taraxaci.

Fucus.

Humuli Strobili.

Hydrargyri Oxydum cinereum.

Infusum Anthemidis.

———— Armoraciæ compositum.

———— Aurantii compositum.

———— Calumbæ.

———— Caryophyllorum.

———— Cascarillæ.

———— Catechu.

———— Cinchonæ.

———— Cuspariæ.

———— Digitalis.

———— Lini.

———— Quassia.

———— Rhei.

———— Simaroubæ.

———— Tabaci.

Lichen.

Linimentum Camphoræ.

———— Hydrargyri.

Linimentum Terebinthinæ.

Linum catharticum.

Liquor Arsenicalis.

———— Ferri alkalini.

———— Hydrargyri Oxymuriatis.

Mel Boracis.

Mistura Ferri composita.

Oleum Pimentæ.

Pilulæ Cambogiæ compositæ.

———— Ferri cum Myrrha.

———— Hydrargyri Submuriatis.

Porri Radix.

Potassæ Carbonas.

———— Supersulphas.

Pulvis Kino compositus.

Salicis Cortex.

Sapo mollis.

Sodæ Carbonas.

———— Subcarbonas exsiccata.

Spiritus Ætheris aromaticus.

Syrupus Sennæ.

Tabaci Folia.

Tinctura Capsici.

———— Digitalis.

———— Guaiaci.

———— Humuli.

Tinctura Hyoscyami.

——— Kino.

Toxicodendri Folia.

Tussilago.

Vinum Opii.

Unguentum Hydrargyri nitrico-oxydi.

——— Picis aridæ.

——— Sulphuris compositum.

——— Zinci.

TABLE

OF

ARTICLES AND PREPARATIONS

CONTAINED IN THE LAST PHARMACOPŒIA, WHICH ARE
OMITTED IN THE PRESENT.

Abrotonum.	Cochlearia hortensis.
Absinthium maritimum.	Conserva Absinthii maritimi.
Acidum acetosum.	———— Lujulæ.
Aluminis purificatio.	———— Ari.
Angelica.	———— Pruni sylvestris.
Antimonium calcinatum.	———— Scillæ.
———— vitrifactum.	Corallium rubrum.
Arnica.	Cubeba.
Arum.	Cuprum.
Aqua Zinci vitriolati cum	Curcuma.
Camphora.	
	Emplastrum Ladani composi-
Bardana.	tum.
Beccabunga.	———— Thuris compo-
Bolus gallicus.	situm.
	Enula campana.
Calx Antimonii.	Eryngium.
Cancer, <i>chelæ</i> .	Extractum Cacuminis Ge-
Caryophyllum rubrum, <i>flos</i> .	nistæ.
Cataplasma Aluminis.	———— Cascarillæ.
———— Cumini.	———— Hellebori nigri.
Ceratum Resinæ flavæ.	———— Rutæ.
Cinara.	———— Sabinæ.

Extractum Sennæ.	Oxymel Colchici.
Fœnum Græcum.	Pareira brava.
Ginseng.	Parietaria.
Gratiola.	Pentaphyllum.
Guaiacum, <i>cortex</i> .	Petroleum sulphuratum.
	Petroselinum.
	Pulvis Aloës cum Canella.
Hydrargyrus acetatus.	———— cum Ferro.
———— cum Sulphure.	———— Asari compositus.
———— muriatus mitis.	———— Cerussæ compositus.
Hypericum.	———— Chelarum Cancris compositus.
	———— Myrrhæ compositus.
Ichthyocolla.	———— Scammonii compositus
Infusum Sennæ tartarizatum.	cum Aloe.
Iris.	———— Scammonii cum Calomelane.
Juglans.	
Ladanum.	
Liquor volatilis Cornu Cervi.	Ribes nigrum.
	rubrum.
Majorana.	Rubus idæus.
Marum syriacum.	
Mel Scillæ.	Salvia, <i>folium</i> .
Melissa.	Sambucus <i>cortex interior,</i>
Millepeda.	<i>bacca.</i>
Minium.	Sanguis draconis.
	Santonium.
Nasturtium aquaticum.	Sarcocolla.
	Scordium.
Oleum animale.	Sium.
———— Cornu Cervi.	Stanni Pulvis.
———— Sassafras.	Succus Cochleariæ compositus.
———— Sinapeos.	

Succus Baccæ Sambuci spissatus.

—— Limonis spissatus.

—— Ribis nigri spissatus.

Syrupus Caryophylli rubri.

—— Ribis nigri.

—— Rubi idæi.

—— Violæ.

Tanacetum.

Tinctura Balsami peruviani.

—————— tolutani.

Tinctura Cinchonæ ammoniata.

—— Galbani.

—— Sabinæ composita.

TROCHISCI.

Vinum Antimonii.

—— Rhabarbari.

Unguentum Cantharidis.

—— Tutia.

Urtica.

Zedoaria.

APPENDIX.

Nº. I.

ESSENTIAL GENERIC AND SPECIFIC CHARACTERS
OF PLANTS, RECEIVED INTO THE CATALOGUE
OF MATERIA MEDICA, ARRANGED ALPHABETI-
CALLY.

ACACIA.—W. G. 1902.

Cl. 23. *Ord.* 1. Polygamia. Monœcia. *Nat.*
Ord. Lomentaceæ. L. Leguminosæ. J.

Hermaph. *Cal.* five toothed. *Cor.* five cleft,
or formed of five petals. *Stam.* 4—100. *Pist.* 1.
Legum. bivalve.

Male. *Cal.* five toothed. *Cor.* five cleft, or
formed of five petals. *Stam.* 4—100.

†††† *Leaves* bipinnate, stipular thorns or pric-
kles, elongated spikes.

73. *A. Catechu.* Uncinated stipular thorns,
in pairs, leaves bipinnate, the partial in ten
pairs, the leaflets in many pairs, pubescent, a
gland on the petiole, and between the two ter-

minating partial leaves, spikes cylindrical, in pairs or three-fold, axillary.

East Indies.

Shrub.

††††† *Leaves bipinnate, stipular thorns or prickles, globular spikes.*

87. *A. vera*. Stipular thorns in pairs and spreading, leaves bipinnate, the partial in two pairs, the leaflets in eight or ten pairs, a gland between each pair of partial leaves, spikes mostly in pairs peduncled, axillary.

Egypt.

Shrub.

ACONITUM. W. G. 1062.

Cl. 13. *Ord.* 3. Polyandria. Trigynia. *Nat.*
Ord. Multisiliquæ. L. Ranunculaceæ. J.

Cal. 0. *Petals* five, the highest arched. *Nect.*
two, peduncled recurved. *Pods* three or five.

†† *Blue Corollas.*

8. *A. Napellus*. Spur of the hood straight, obtuse, lip lanceolate, ascending, bifid, the upper lip convex, leaves glossy, five parted, laciniaë three parted gashed, linear.

Mountainous parts of Switzerland, Germany, and Siberia.—Perennial.

ACORUS.—W. G. 663.

Cl. 6. *Ord.* 1. Hexandria. Monogynia. *Nat.*
Ord. Piperitæ. L. Aroideæ. J.

Spadix cylindrical, covered with florets.—
Corol. of six petals naked, *Style* o. *Capsule*
 three celled.

1. *A. Calamus*. The point of the scape very
 long and leafy.

ALLIUM.—W. g. 626.

Class 6. *Ord.* 1. Hexandria. Monogynia.
Nat. Ord. Spathaceæ. L. Asphodeli. J.

Cor. six-parted, spreading. *Spathe* many
 flowered. *Umbel* heaped together. *Capsule* su-
 perior.

† *Stem leaves plane. Umbel bearing a capsule.*

2. *A. Porrum*. Stem having plane leaves, um-
 belliferous, stamina three pointed, root coated.
 Switzerland. Biennial.

†† *Stem leaves plane. Umbel bearing a bulb.*

14. *A. sativum*. Stem having plane leaves,
 bearing a bulb, bulb compound, stamina three
 pointed.

Sicily. Perennial.

ALOE.—W. g. 659.

Cl. 6. *Ord.* 1. Hexandria. Monogynia. *Nat.*
Ord. Coronariæ. L. Asphodili. J.

Cor. Erect with a spreading mouth, nectari-
 ferous bottom. *Filam.* inserted into the recep-
 tacle.

2. *A. spicata*. Caulescent, leaves plane ensi-

form toothed, flowers with spikes, bell-shaped, horizontal.

Cape of Good Hope.

Shrub.

ALTHÆA.—W. G. 1289.

Cl. 16. *Ord.* 8. Monadelphia. Polyandria. *Nat. Ord.* Columniferae. L. Malvaceae. J.

Cal. double; the exterior six or nine cleft. *Capsules*, numerous, one-seeded.

1. *A. officinalis*. Leaves downy, oblong-ovate, obscurely three-lobed, toothed.

Indigenous.

Perennial.

AMYGDALUS.—W. G. 981.

Cl. 12. *Ord.* 1. Icosandria. Monogynia. *Nat. Ord.* Pomaceae. L. Rosaceae. J.

Cal. five cleft, inferior. *Pet.* five. *Drupe* with a shell perforated with pores. Skin pubescent.

2. *A. communis*. The lowest serratures of the leaves glandular. Flowers sessile in pairs.

Var. β . Sweet almond.

γ . Bitter almond.

Northern Africa.

Shrub.

AMYRIS.—W. G. 755.

Cl. 3. *Ord.* 1. Octandria. Monogynia. *Nat. Ord.* Terebintaceae. J.

Cal. four-toothed. *Pet.* four, oblong. *Stigma* four-cornered. *Berry* drupaceous.

2. *A. Elemifera*. Leaves ternate, pinnate with five lobes, downy underneath.

Carolina.

Shrub.

ANETHUM.—W. c. 560.

Cl. 5. *Ord.* 2. Pentandria. Digynia. *Nat.*
Ord. Umbellatæ. L.

Fruit. nearly ovate, compressed, striated. *Pet.* involuted, entire.

1. *A. graveolens*. Fruit compressed.
Spain and Portugal. Annual.

3. *A. Fœniculum*. Fruit ovate.
South of Europe. Perennial.

ANTHEMIS.—W. c. 1517.

Cl. 19. *Ord.* 2. Syngenesia. Superflua. *Nat.*
Ord. Compositæ discoideæ. L. Corymbiferæ. J.

Recep. chaffy. *Seed-down* none, or a membranaceous margin. *Cal.* hemispherical, nearly equal. *Florets* of the ray more than five.

† *The ray* colourless, or white.

15. *A. nobilis*. Leaves bipinnate, leaflets tripartite, finely awl-shaped, nearly villous, the stem branched at the base.

Indigenous. Perennial.

25. *A. Pyrethrum*. Leaves triply pinnate, leaflets linear, stem decumbent, its branches axillary with one flower.

Arabia and the South of Europe. Perennial.

ARBUTUS.—W. G. 871.

Cl. 10. *Ord.* 1. Decandria. Monogynia. *Nat.*
Ord. Bicornes. L. Ericæ. J.

Cal. five parted. *Cor.* ovate, the mouth diaphanous at the base. *Berry* five celled.

7. *A. Uva Ursi.* Stems procumbent, leaves quite entire.

North of Europe.

Shrub.

ARISTOLOCHIA.—W. G. 1609.

Cl. 20. *Ord.* 4. Gynandria. Hexandria. *Nat.*
Ord. Sarmenlaceæ. L. Aristolochiæ. J.

Cal. o. *Cor.* one petal, strap-shaped, ventricose at the base. *Caps.* six celled, containing many seeds, inferior.

† *Stem twining frutescent.*

27. *A. Serpentaria.* Leaves heart-shaped, oblong, acuminate, stem flexuose ascending, root-peduncles, the lip of the corolla lanceolate.

Virginia.

Perennial.

ARTEMISIA.—W. G. 1473.

Cl. 19. *Ord.* 2. Syngenesia. Superflua. *Nat.*
Ord. Compositæ nucamentaceæ. L. Corymbiferæ. J.

Recept. sub-villous, or nearly naked. *Seed down* none. *Cal.* imbricate with rounded, converging scales. *Cor.* rays none.

††† *Herbaceous, with a stem rather branched, flowers in panicles, compound leaves.*

63. *A. Absinthium*. Leaves hoary, the root-leaves triply pinnatifid with lanceolate toothed obtuse laciniaë, the cauline leaves bipinnatifid, or pinnatifid with lanceolate small acute laciniaë, the floral leaves undivided lanceolate, flowers globose peduncled nodding.

Europe.

Perennial.

ASARUM.—W. G. 925.

Cl. 11. *Ord.* 1. Dodecandria. Monogynia.

Nat. Ord. Sarmenaceæ. L. Aristolochiæ. J.

Cal. three or four-cleft, placed on the germ.

Cor o. *Caps.* coriaceous, crowned.

1. *A. Europæum*. Leaves kidney-shaped, blunt in pairs.

Europe.

Perennial.

ASPIDIUM.—F. B. G. 429.

Cl. 24. *Ord.* 1. Cryptogamia. Filices. *Nat.*

Ord. Filices.

Fructifications in roundish points, scattered, not marginal. *Involucre* umbilicate almost in every direction gaping.

†† *The frond rather bipinnate.*

4. *A. Filix Mas*. Frond bipinnate, leaflets

obtuse serrated, stipe chaffy, involucre spinal.
Indigenous.

ASTRAGALUS.—W. G. 1379.

Cl. 17. *Ord.* 4. Diadelphia. Decandria. *Nat.*
Ord. Papilionaceæ, or Leguminosæ. L.
Legumen generally two-celled, gibbous.

ATROPA.—W. G. 381.

Cl. 5. *Ord.* 1. Pentandria. Monogynia. *Nat.*
Ord. Luridæ. L. Solanaceæ. J.

Cor. bell-shaped. *Stam.* distant. *Berry* globose two-celled.

2. *A. Belladonna.* Stem herbaceous, leaves ovate entire.

Indigenous.

Perennial.

AVENA.—W. G. 142.

Cl. 3. *Ord.* 2. Triandria. Digynia. *Nat. Ord.*
Gramina. L.

Cal. two-valved, many flowered. *Awn* from the back of the corolla, twisted.

13. *A. sativa.* Panicked, calyxes two-seeded, seeds very smooth, one awned.

Island of Juan Fernandez.

Annual.

BUBON.—W. G. 546.

Cl. 5. *Ord.* 2. Pentandria. Digynia. *Nat.*
Ord. Umbellatæ.

Fruit ovate, striated, villose.

2. *B. Galbanum.* Leaflets ovate, wedge-shaped, sharp, finely serrated, umbels few, seeds smooth, stem shrubby glaucous.

Cape of Good Hope.

Shrub.

CANELLA.—W. G. 942.

Cl. 11. *Ord.* 1. Dodecandria. Monogynia. *Nat.* *Ord.*

Cal. three-lobed. *Pet.* five. *Anth.* sixteen, adhering to a pitcher-shaped nectary. *Berry* one-celled, with two or four seeds.

1 *C. alba.*

West Indies.

Shrub.

CAPSICUM.—W. G. 334.

Cl. 5. *Ord.* 1. Pentandria. Monogynia. *Nat.*
Ord. Luridæ. L. Solanææ. J.

Cor. wheel-shaped. *Berry* without juice.

1. *C. annuum.* Stem herbaceous, peduncles solitary.

South America.

Annual.

CARDAMINE.—W. G. 1237.

Cl. 15. *Ord.* 2. Tetradynamia. Siliquosa. *Nat. Ord.* Siliquosæ.

Pods opening elastically, with valves, rolled back. *Stig.* entire. *Cal.* somewhat gaping.

††† *With pinnate leaves.*

19. *C. pratensis.* Leaves pinnate, radical leaflets nearly round; those on the stem lanceolate.

Europe.

Perennial.

CARUM.—W. G. 561.

Cl. 5. *Ord.* 2. Pentandria. Digynia. *Nat. Ord.* Umbellatæ.

Fruit. ovate-oblong, striated. *Involucre*, one leafed. *Pet.* keeled, inflex-emarginate.

1. *C. Carui.* Stem branched, sheath of the leaves distended, partial involucre none.

North of Europe.

Biennial.

CASSIA.—W. G. 813.

Cl. 10. *Ord.* 1. Decandria. Monogynia. *Nat. Ord.* Lomentaceæ. L. Leguminosæ. J.

Cal. five leafed. *Pet.* five. *Anthers* three superior, barren; the three lower ones beaked. *Lomentum.*

† *Sennas.*

18. *C. Fistula*. Leaves with five pair of leaflets, ovate, sharp-pointed, smooth, petioles without glands.

India, Egypt.

Shrub.

24. *C. Senna*. Leaves with six pair of leaflets, subovate, petioles without glands.

Egypt.

Annual.

CHIRONIA.—W. G. 394.

Cl. 5. *Ord.* 1. Pentandria. Monogynia. *Nat. Ord.* Rotacææ. L. Gentianæ. J.

Cor. wheel-shaped. *Pist.* declining. *Stam.* fixed on the tube of the corolla. *Anthers* spiral at the end. *Pericarp* two-celled.

9. *C. Centaurium*. Herbaceous, leaves elliptic three-nerved, stem dichotomous, corymbed, laciniaæ of the calyx awl-shaped, slightly spreading, limbus of the corolla plane.

Europe.

Annual.

CINCHONA.

Cl. 5. *Ord.* 1. Pentandria. Monogynia. *Nat. Ord.* Contortæ L. Rubiaceæ. J.

Cor. funnel-shaped. *Caps.* inferior, two-celled bipartite, with a parallel partition.

CITRUS.—W. G. 1391.

Cl. 18. *Ord.* 3. Polyadelphia. Icosandria. *Nat. Ord.* Bicornes. L. Aurantia. J.

Cal. five-cleft. *Pet.* five, oblong. *Anthers*

twenty, filaments united into various parcels:
Berry nine-celled.

C. medica. Petioles linear, leaves ovate acuminate.

Asia, Persia.

Shrub.

C. Aurantium. Petioles winged, leaves acuminate, stem arboreous.

India.

Shrub.

COCHLEARIA.—W. G. 1228.

Cl. 15. *Ord.* 1. Tetradyndamia. Siliculosa. *Nat.*
Ord. Siliquosæ. L. Cruciferae. J.

Silicule emarginate, turgid, rugged. *Valves* gibbous, obtuse.

8. *C. Armoracia.* Root-leaves lanceolate crenate, cauline leaves gashed.

Europe.

Perennial.

COLCHICUM.—W. G. 707.

Cl. 4. *Ord.* 3. Hexandria. Trigynia. *Nat.*
Ord. Spathaceæ. L. Junci. J.

A. Spathe. *Cor.* six-parted with a rooted tube.
Caps. 3. connected, inflated.

C. autumnale. Leaves flat, lanceolate erect.

Indigenous.

Perennial.

CONIUM.—W. G. 533.

Cl. 5. *Ord.* 2. Pentandria. Digynia. *Nat. Ord.*
 Umbellatæ.

Partial involucre placed only on one side, of about three leaves. *Fruit* nearly globose, with five ribs, notched on both sides.

1. *C. maculatum*. Seeds striated.

Indigenous.

Annual.

CONVOLVULUS.—W. G. 323.

Cl. 5. *Ord.* 1. Pentandria. Monogynia. *Nat.*
Ord. Campanaceæ. L. Convolvuli. J.

Cor. Bell-shaped, plaited. *Stig.* two. *Caps.* two-celled, each cell containing two seeds.

† *Stem twining.*

4. *C. Scammonia*. Leaves sagittate, truncate on the back part, peduncles columnar with about three flowers.

Syria.

Perennial.

61. *C. Jalapa*. Stem twining, leaves ovate, somewhat heart-shaped, obtuse, obscurely repand, villose beneath, peduncles bearing one flower.

Mexico.

Shrub.

COPAIFERA.—W. G. 880.

Cl. 10. *Ord.* 2. Decandria. Digynia. *Nat.*
Ord. Leguminosæ. J.

Cal. o. *Petal* four. *Legume* ovate. *Seed* one.
aril ovate.

1. *C. officinalis*.

The Brasils.

Shrub.

CORIANDRUM.—W. G. 552.

Cl. 5. *Ord.* 2. Pentandria. Digynia. *Nat.*
Ord. Umbellatæ.

Cor. radiate. *Pet.* notched and turned inward. *Involucre* universal one-leaved; the partial ones halved. *Fruit* spherical.

C. sativum. Fruit globose.

Italy.

Annual.

CROCUS.—W. G. 92.

Cl. 3. *Ord.* 1. Triandria. Monogynia. *Nat.*
Ord. Ensatæ. L. Irides. J.

Cor. six-parted, equal. *Stigma* convoluted.

1. *C. sativus.* *Stigma* trifid of the length of the corolla, reflected, leaves linear, rolled in at the edges.

East.

Perennial.

CROTON.—W. G. 1713.

Cl. 21. *Ord.* 8. Monoecia. Monadelphia. *Nat.*
Ord. Tricoccæ. L. Euphorbiæ. J.

Male. *Cal.* cylindrical, five-toothed. *Cor.* five petals. *Stam.* 10—15.

Female. *Cal.* many leaved. *Cor.* 0. *Styl.* three, bifid. *Caps.* three-locular seeds.

2. *C. Cascarilla.* Leaves lanceolate, quite entire, obtuse, emarginate, dagger pointed, pe-

tiolate, downy beneath, flower male and female.

West Indies.

Shrub.

CUCUMIS.—W. G. 1741.

Cl. 21. *Ord.* 8. Monoecia. Monadelphia. *Nat. Ord.* Cucurbitaceæ.

Male. *Cal.* five-toothed. *Cor.* five parted. *Filam.* 3.

Female. *Cal.* five-toothed. *Cor.* five parted. *Pist.* three-cleft. Seeds of the *Gourd* argute.

1. *C. Colocynthis.* Leaves many cleft; pome globular, smooth.

Cape of Good Hope.

Annual.

CUMINUM.—W. G. 547.

Cl. 5. *Ord.* 2. Pentandria. Digynia. *Nat. Ord.* Umbellatæ.

Fruit ovate striated. *Umbellets* four. *Involucre* four-cleft.

1. *C. Cyminum.*

Egypt.

Annual.

DAPHNE.—W. G. 773.

Cl. 8. *Ord.* 1. Octandria. Monogynia. *Nat. Ord.* Vepriculæ. L. Thymelææ. J.

Cal. o. *Cor.* four-cleft, corollaceous, withering, inclosing the stamens. *Drupe* one-seeded.

Flowers lateral.

1. *D. Mezereum*. Flowers sessile in threes on the stem, leaves lanceolate deciduous. North of Europe. Shrub.

DAUCUS.—W. G. 530.

Cl. 5. *Ord.* 2. Pentandria. Digynia. *Nat. Ord.* Umbellatæ.

Cor. Somewhat rayed. *Florets* of the disk abortive. *Fruit* hispid with hair.

1. *D. Carota*. Seeds hispid, petioles nerved on the under side.

Indigenous. Biennial.

DELPHINIUM.—W. G. 1061.

Cl. 13. *Ord.* 3. Polyandria. Trigynia. *Nat. Ord.* Multisiliquæ. L. Ranunculaceæ. J.

Cal. 0. *Petals* five. *Nectary* bifid, forming a horn behind. *Pods* three or one.

†† *Three capsuled.*

13. *D. Staphisagria*. Nectaries four-leaved, shorter than the petals, leaves hand-shaped, lobes obtuse.

Istria, Apulia, Crete. Biennial.

DIGITALIS.—W. G. 1155.

Cl. 14. *Ord.* 2. Didynamia. Angiospermia. *Nat. Ord.* Luridæ. L. Scrophulariæ. J.

Cal. five-partite. *Cor.* bell-shaped, five-cleft, bellying. *Caps.* ovate two-celled.

1. *D. Purpurea*. Leaflets of the calyx ovate acute, corollas obtuse, superior lip entire.

Indigenous. Biennial.

DOLICHOS.—W. G. 1349.

Cl. 17. *Ord.* 4. Diadelphia. Decandria. *Nat.*
Ord. Papilionaceæ.

Two parallel oblong calluses at the base of the standard, compressing the wings underneath.

† *Twining*.

16. *D. pruriens*. Legumes growing in a raceme: valves somewhat keeled, rough-haired, peduncles in threes.

India. Shrub.

DORSTENIA.—W. G. 244.

Cl. 3. *Ord.* 1. Tetrandria. Monogynia. *Nat.*
Ord. Scabridæ. L. Urticæ. J.

Receptacle common, one-leaved, fleshy, in which solitary seeds are placed (without attachment.)

5. *D. Contrajerva*. Scapes rooted, leaves pinnatifid hand-shaped serrate, receptacles quadrangular.

New Spain, Mexico, Peru. Perennial.

EUGENIA.—W. G. 972.

Cl. 12. *Ord.* 1. Icosandria. Monogynia. *Nat.*
Ord. Hesperideæ. L. Myrti. J.

Calyx four-parted, superior. *Petals* four.
Berry one-celled, one-seeded.

24. *E. caryophyllata*. Leaves quite entire, oblong, rather sharp, peduncles trichotomous, panicles axillary and terminating, calyxes repand, fruit elliptic.

Moluccas.

Shrub.

EUPHORBIA.—W. c. 959.

Cl. 11. *Ord.* 3. Dodecandria. Trigynia. *Nat. Ord.* Tricoccæ. L. Euphorbiæ. J.

Cor. four or five-petalled, fixed to the calyx.

Cal. one-leaved, bellied. *Caps.* three-grained.

† *Shrubby, prickly.*

7. *E. officinarum*. Prickly, naked, with many angles, prickles double.

Africa.

Shrub.

FERULA.—W. c. 539.

Cl. 5. *Ord.* 2. Pentandria. Digynia. *Nat. Ord.* Umbellatæ.

Fruit oval, flatted, plane, three streaks on both sides.

11. *F. Assafætida*. Leaflets alternately sinuate, obtuse.

Persia.

Perennial.

FICUS.—W. c. 1931.

Cl. 23. *Ord.* 2. Polygamia. Dioecia. *Nat. Ord.* Scabridæ. L. Urticæ. J.

Common receptacle turbinate, fleshy, converging, concealing the florets, either in the same or a distinct individual.

Male. *Cal.* three-parted. *Cor.* o. *Stam.* three.

Female. *Cal.* five-parted. *Cor.* o. *Pistil* one.

Seeds covered by a permanent, closed, somewhat fleshy calyx.

† *Leaves* lobed.

1. *F. Carica*. Leaves heart-shaped, three or five-lobed repand-toothed, lobes obtuse, rough above, pubescent beneath, receptacles pyriform smooth.

Arabia Felix.

Shrub.

FRAXINUS.—W. & 1903.

Cl. 23. *Ord.* 2. Polygamia. Dioecia. *Nat.* *Ord.* Sepiariæ. L. Jasmineæ. J.

Hermaph. *Cal.* o. or four-parted. *Cor.* o. or four petals. *Stam.* two. *Pist.* one. *Seed* (or *Caps.*) monospermous, lanceolate.

Female. *Cal.* o. or four-parted. *Cor.* o. or four petals. *Pist.* one, lanceolate.

15. *F. Ornus*. Leaflets petiolate, oblong-lanceolate, sharp-pointed, serrate, flowers with corollas.

South of Europe.

Shrub.

FUCUS.

Cl. 24. *Ord.* 4. Cryptogamia. Algæ.

Seeds produced in clustered tubercles, which burst at their summit.

F. vesiculosus. Frond linear, dichotomous entire, with a central rib, and furnished with se-

veral globose imbedded air-bladders: extremities cloven, tumid when in fructification.

Indigenous.

GENTIANA.—W. G. 512.

Cl. 5. *Ord.* 2. Pentandria. Digynia. *Nat. Ord.* Rotaceæ. L. Gentianæ. J.

Cor. one-petalled. *Caps.* two-valved, one-celled. *Receptacles* two, longitudinal.

† *Corollas*, five or nine-cleft, somewhat bell-shaped.

1. *G. lutea*. Corollas somewhat five-cleft, wheel-shaped, verticillate, the whorls somewhat cymose, calyxes with spathes.

Mountains of Europe.

Perennial.

GLYCYRRHIZA.—W. G. 1366.

Cl. 17. *Ord.* 4. Diadelphia. Decandria. *Nat. Ord.* Papilionaceæ.

Cal. bilabiate. Upper lip three-cleft, lower undivided. *Legume* ovate-flatted.

4. *G. glabra*. Legumes smooth, flowers in racemes, stipules none, leaflets ovate, somewhat retuse, rather glutinous on the under part.

South of France, Spain, Italy.

Perennial.

GUAIACUM.—W. G. 819.

Cl. 10. *Ord.* 1. Decandria. Monogynia. *Nat. Ord.* Gruinales. L. Rotaceæ. J.

Cal. five-parted unequal. *Petals* five, inserted into the receptacles. *Caps.* angular, three or five-celled.

2. *G. Officinale*. Leaflets in two pairs, obtuse. Jamaica, Hispaniola. Perennial.

HÆMATOXYLON.—W. G. 830.

Cl. 10. *Ord.* 1. Decandria. Monogynia. *Nat.* *Ord.* Lomentaceæ. L. Leguminosæ. J.

Cal. five-parted. *Pet.* five. *Caps.* lanceolate, one-celled, two-valved, valves boat-shaped.

1. *H. Campechianum*. America. Shrub.

HELLEBORUS.—W. G. 1089.

Cl. 13. *Ord.* 6. Polyandria. Polygynia. *Nat.* *Ord.* Multisiliquæ. L. Ranunculaceæ. J.

Cal. 0. *Petals* five or more. *Nectaries* bilabiate tubular. *Caps.* many seeded, nearly upright.

3. *H. niger*. Scape, with about two flowers, nearly naked, leaves pedate.

Austria. Perennial.

6. *H. fœtidus*. Stem many-flowered, leafy; leaves pedate.

Indigenous. Perennial.

HUMULUS.—W. G. 1795.

Cl. 22. *Ord.* 5. Dioecia. Pentandria. *Nat.* *Ord.* Scabridæ, L. Urticæ. J.

Male. Cal. five-leafed. *Cor.* o.

Female. Cal. one-leafed, obliquely spreading, entire. *Cor.* o. Styles two. Seed one, within a leafy calyx.

H. Lupulus.

Europe.

Perennial.

HYOSCYAMUS.—W. G. 378.

Cl. 5. *Ord.* 1. Pentandria. Monogynia. *Nat. Ord.* Luridæ. L. Solanææ. J.

Cor. funnel-shaped, obtuse. *Stam.* inclined. *Caps.* covered with a lid, two-celled.

1. *H. niger.* Leaves stem-clasping sinuate, flowers sessile.

Europe.

Biennial.

HORDEUM.—W. G. 151.

Cl. 3. *Ord.* 2. Triandria. Digynia. *Nat. Ord.* Gramina.

Cal. lateral, two-valved, one-flowered, three-fold.

3. *H. distichon.* Florets lateral, male awnless, seeds angular, imbricate.

The River Tamara.

Annual.

JUNIPERUS.—W. G. 1841.

Cl. 22. *Ord.* 13. Diœcia. Monadelphia. *Nat. Ord.* Coniferæ.

Male. Ament ovate. *Calyx* a scale. *Cor.* o. *Stam.* three.

Female. *Cal.* three-parted. *Petals*, three. *Styles* three. *Berry* three-seeded, irregular, with the three tubercles of the calyx.

6. *J. Sabina*. Leaves opposite obtuse glandular in the middle, imbricate four-fold, the young leaves acute opposite, stem shrubby.

Portugal, Italy. Shrub.

10. *J. communis*. Leaves in threes mucronate, spreading longer than the berry.

North of Europe. Shrub.

14. *J. Lycia*. Leaves in three imbricate on all sides, ovate obtuse.

France. Shrub.

LAURUS.—W. G. 798.

Cl. 9. *Ord.* 1. Enneandria. Monogynia. *Nat.* *Ord.* *Holoraceæ*. L. Lauri. J.

Cal. o. *Cor.* calycine, six-parted. *Nectary* of three two-bristled glands, surrounding the germ. *Filam.* inner glanduliferous. *Drupe*, one-seeded.

1. *L. Cinnamomum*. Leaves three-nerved ovate, oblong, nerves disappearing towards the end.

Martinico, in the Mountain Calebasse. Shrub.

5. *L. Camphora*. Leaves triple-nerved, lanceolate-ovate.

East Indies. Shrub.

10. *L. nobilis*. Leaves lanceolate veined, perennial, flower four-cleft, diœcious.

Italy. Shrub.

84. *L. Sassafrass.* Leaves entire and three-lobed.

Virginia, Carolina.

Shrub.

LAVANDULA.—W. G. 1099.

Cl. 14. *Ord.* 1. Didynamia. Gymnospermia.
Nat. Ord. Verticillatæ.

Cal. ovate, obscurely toothed, supported by a bractea. *Cor.* resupine. *Stamina* within the tube.

1. *L. Spica.* Leaves sessile, lanceolate-linear rolled back at the edge; spike interrupted, naked.

South of Europe.

Shrub.

LEONTODON.—W. G. 1407.

Cl. 19. *Ord.* 1. Syngenesia. Polygamia
Æqualis. *Nat. Ord.* Compositæ Semiflosculosi.
L. Cichoraceæ. J.

Recept. naked. *Cal.* double. *Seed-dozon* on a pillar, hairy.

1. *L. Taraxacum.* Exterior calyx reflex, scape one-flowered, leaves runcinate smooth, segments lanceolate, toothed.

Indigenous.

Perennial.

LICHEN.

Cl. 24. *Ord.* 5. Cryptogamia Algæ. *Nat.*
Ord. Algæ.

LINUM.—W. G. 590.

Cl. 5. *Ord.* 5. Pentandria. Pentagynia.
Nat. Ord. Gruinales. *L. Caryophylleæ.* J.

Cal. five-leaved. *Pet.* five. *Caps.* five-valved, ten-celled. *Seeds* solitary.

† *With alternate leaves.*

1. *L. usitatissimum*. Calyxes and capsules mucronate, petals crenate, leaves lanceolate alternate, stem generally solitary.

South of Europe.

Annual.

†† *With opposite leaves.*

26. *L. catharticum*. Leaves opposite, ovate, lanceolate, stem dichotomous, corollas acute.

North of Europe.

Annual.

MALVA.—W. G. 1290.

Cl. 16. Ord. 6. Monadelphia. Polyandria.—

Nat. Ord. Columniferæ. L. Malvaceæ. J.

Cal. double, outer three-leaved. Caps. many, one-seeded.

†† *With leaves angular.*

43. *M. sylvestris*. Stem upright herbaceous, leaves seven-lobed, acute, peduncles and petioles hairy.

Europe.

Biennial.

MARRUBIUM.—W. G. 1111.

Cl. 14. Ord. 1. Didynamia. Gymnospermia.

Nat. Ord. Verticillatæ. L. Labiatæ. J.

Cal. Salver-shaped, rigid, ten-streaked. Cor. Upper lip bifid, linear, straight.

†† *With ten-teethed calyxes.*

8. *M. vulgare*. Leaves roundish-ovate, toothed, wrinkled with veins. Calycine teeth, bristle-shaped uncinatè,

Europe,

Perennial.

MENTHA.—W. G. 1102. S. F. B. G. 262.

Cl. 14. Ord. I. Didynamia. Gymnospermia.
Nat. Ord. Verticillatæ

Cor. almost equal, four-cleft, the broader segment emarginate, stamens upright, distant.

3. *M. viridis*. Spikes interrupted, leaves sessile, lanceolate acute, naked, bractes setaceous, and the calycine teeth somewhat shaggy.
Indigenous. Perennial.

4. *M. piperita*. Spikes obtuse, interrupted beneath, leaves petiolate, subovate, rather smooth, calyx, with a very smooth base.
Indigenous. Perennial.

12. *M. Pulegium*. Flowers verticillate, leaves ovate, stem trailing, pedicles and calyxes everywhere downy, teeth ciliated.
Indigenous. Perennial.

MENYANTHES.—W. G. 299.

Cl. 10. Ord. 1. Pentandria. Monogynia. Nat. Ord. Preciæ. L. Lysimachiæ. J.

Cor. shaggy. Stigma bifid. Caps. one-celled.

4. *M. trifoliata*. Leaves ternate.
Europe. Perennial.

MOMORDICA.—W. G. 1739.

Cl. 21. Ord. 8. Monœcia. Monadelphia.
Nat. Ord. Cucurbitaceæ.

Male. Cal. five-cleft. *Cor.* five-parted. *Filaments* three.

Female. Cal. five-cleft. *Cor.* five-parted. *Style* trifid. *Gourd* opening elastically.

13. *M. Elaterium.* Pomes elliptic hispid, leaves heart-shaped hispid obtuse toothed, stem with no tendrils.

South of Europe.

Annual.

MORUS.—W. G. 1664.

Cl. 21. *Ord.* 4. Monœcia. Tetrandria. *Nat. Ord.* Scabridæ. L. Urticæ. J.

Male. Cal. four-clefted. *Cor.* o.

Female. Cal. four-leaved. *Cor.* o. *Styles* two. *Cal.* becoming a berry. *Seed* one.

5. *M. nigra.* Leaves cordate, ovate or lobed, unequally toothed, rugged.

Italy.

Shrub.

MYRISTICA.—W. G. 1851.

Cl. 22. *Ord.* 13. Diœcia. Monadelphina. *Nat. Ord.* Lauri. J. Holoraceæ. L?

Male. Cal. none. *Cor.* bell-shaped, trifid. *Filament* columnar. *Anthers* six or ten united.

Female. Cal. none. *Cor.* bell-shaped, trifid, deciduous. *Style* o. *Stigm.* two. *Drupe*, a nut involved in an aril (*Mace*), with one seed.

1. *M. moschata.* Leaves oblong, acuminate, smooth, veins simple. fruit solitary, smooth.

The Moluccas.

Shrub.

MYROXYLON.—W. G. 829.

Cl. 10. *Ord.* 1. Decandria. Monogynia. *Nat.*
Ord. Lomentaceæ. L. Leguminosæ. J.

Cal. bell-shaped, five-toothed. *Petals* five,
 the uppermost greater than the rest. *Germ.*
 longer than the corolla. *Legume*, having one
 seed at the point.

1. *M. peruvianum*. Leaves abruptly pinnate
 in pairs, leaflets nearly opposite.

South America.

Shrub.

MYRTUS.—W. G. 973.

Cl. 12. *Ord.* 1. Icosandria. Monogynia. *Nat.*
Ord. Hesperideæ. L. Myrti. J.

Cal. five-cleft superior. *Pet.* 5. *Berry*, two
 or five-celled, many-seeded.

28. *M. Pimenta*, leaves alternate.

West Indies.

Shrub.

NICOTIANA.—W. G. 379.

Cl. 5. *Ord.* 1. Pentandria. Monogynia. *Nat.*
Ord. Luridæ. L. Solanaceæ. J.

Cor. funnel-form, with a plaited border.
Stam. inclined. *Caps.* two-valved, two-celled.

N. Tabacum. Leaves lanceolate ovate ses-
 sile decurrent, flowers acute.

America.

Annual.

OLEA.—W. G. 36.

Cl. 2. *Ord.* 1. Diandria. Monogynia. *Nat.*
Ord. Sepiariæ. L. Jasmineæ. J.

Cor. four-cleft, with subovate segments.
Drupe, one-seeded.

1. *O. europæa*. Leaves lanceolate, quite entire, racemes axillary contracted.
 South of Europe. Shrub,

ORIGANUM.—W. G. 1116.

Cl. 14. *Ord.* 1. Didynamia. Gymnospermia.
Nat. Ord. Verticillatæ. L. Labiatæ. J.

Strobile. four-cornered, spiked, collecting the calyxes. *Cor.* upper lip erect flat, lower three-parted, segments equal.

10. *O. vulgare*. Spikes roundish, paniced, conglomerate, bractes longer than the calyx ovate.

Europe, America. Perennial.

OXALIS.—W. G. 918.

Cl. 10. *Ord.* 5. Decandria. Pentagynia. *Nat.*
Ord. Gruinales. L. Gerania. J.

Cal. five-leafed. *Petals* connected by claws.
Stam. unequal, the five-shorter exterior ones connected at the base. *Caps.* opening at the corners, five-cornered.

††† *Leaves ternate, scape one-flowered.*

25. *O. Acetosella*. Stemless, scape one-flowered longer than the leaves, leaves ternate obcordate, styles of the length of the interior stamens, root jointed.

Europe.

Perennial.

PAPAVER.—W. G. 1015.

Cl. 13. *Ord.* 1. Polyandria. Monogynia. *Nat. Ord.* Rhœadææ. L. Papaveraceæ. J.

Cor. four-petalled. *Cal.* two-leaved. *Caps.* one-celled, opening by holes under the permanent stigma.

†† *With smooth capsules.*

5. *P. Rhæas*. Capsules smooth globose, stem having many flowered leaves pinnatifid gashed.

Europe.

Annual.

7. *P. somniferum*. Calyxes and capsules smooth, leaves embracing, gashed.

South of Europe.

Annual.

PASTINACA.—W. G. 553.

Cl. 5. *Ord.* 2. Pentandria. Digynia. *Nat. Ord.* Umbellatæ.

Fruit elliptic, compressed flat. *Petals* involute entire.

3. *P. Opoponar*. Leaves pinnate, leaflets gashed at the base in front.

Italy.

Perennial.

PIMPINELLA.—W. G. 562.

Cl. 5. *Ord.* 2. Pentandria. Digynia. *Nat. Ord.* Umbellatæ.

Fruit ovate-oblong. *Petals* entire. *Stigm.* sub-globular.

2. *P. Anisum.* Radical leaves trifid gashed.
Egypt. Annual.

PINUS.—W. G. 1711.

Cl. 21. *Ord.* 8. Monoecia. Monadelphica. *Nat. Ord.* Coniferæ.

Male. Cal. four-leaved. *Cor.* 6. *Stamens* very many. *Anthers* naked.

Female. Cal. Strobiles, with a two-flowered scale. *Cor.* none. *Pist.* one. Nut with a membranaceous wing.

† *Leaves* double.

1. *P. sylvestris.* Leaves two in a sheath, rigid, cones ovate-conical, the length of the leaves, generally two together rounded at the base.

North of Europe.

Shrub.

††††† *Leaves* solitary and distinct at the base.

37. *P. Balsamea.* Leaves solitary flat emarginate subpectinate almost upright above, the scales of the cone when in flower acuminate reflex.

Virginia, Canada.

Shrub.

32. *P. Abies*. Leaves solitary four-cornered, strobile cylindrical scales rhomb-shaped flattened repand at the margin gnawed.

Europe, Asia.

Shrub.

PIPER.—W. G. 74.

Cl. 2. *Ord.* 3. Diandria. Trigynia. *Nat. Ord.* Piperitæ. L. Urticæ. J.

Cal. o. *Cor.* o. Berry one-seeded.

1. *P. nigrum*. Leaves ovate, commonly seven nerved smooth, petioles quite simple.

India.

Shrub.

12. *P. longum*. Leaves cordate petioled and sessile.

PISTACIA.—W. G. 1782.

Cl. 22. *Ord.* 5. Dioecia. Pentandria. *Nat. Ord.* Amentaceæ. L. Terebintaceæ. J.

Male. Cal. five-cleft. *Cor.* o.

Female. Cal. three-cleft. *Cor.* o. *Styles* three. *Drupe* one-seeded.

4. *P. Terebinthus*. Leaves unequally pinnate, leaflets about seven ovate-lanceolate rounded at the base acute sharp pointed.

South of Europe.

Shrub.

6. *P. Lentiscus*. Leaves abruptly pinnate, leaflets lanceolate eight-fold petiole winged.

Spain, Portugal.

Shrub.

POLYGALA.—W. G. 1313.

Cl. 17. *Ord.* 3. Diadelphia. Octandria. *Nat.*
Ord. Lomentaceæ. L. Pediculares. J.

Cal. five-leaved, with two of the leaflets shaped like wings, and coloured. *Legume*, obcordate, two-celled.

††† *Beardless, herbaceous, with a simple stem.*

67. *P. Senega.* Flowers beardless, spike terminating, thread-shaped, stem upright, herbaceous, quite simple, leaves oblong, lanceolate. Virginia, Pennsylvania. Perennial.

POLYGONUM.—W. G. 785.

Cl. 12. *Ord.* 1. Icosandria. Monogynia. *Nat.*
Ord. Holoraceæ. L. Polygoneæ. J.

Cal. o. *Cor.* five-parted, calycine. *Seed.* one, angular.

†† *Bistortæ.* *Spike single.*

3. *P. Bistorta.* Stem quite simple, with a single spike, leaves ovate, running into the petiole.

Austria, Germany. Perennial.

PRUNUS.—W. G. 982.

Cl. 8. *Ord.* 3. Octandria. Trigynia. *Nat.*
Ord. Pomaceæ. L. Rosaceæ. J.

Cal. five-parted beneath. *Petals*, five. *Nut of the Drupe* with prominent sutures.

P. domestica. Peduncles mostly solitary ; leaves ovate, lanceolate, convoluted, branches without thorns.

Southern Europe.

Shrub.

PTEROCARPUS.—W. G. 1318.

Cl. 17. *Ord.* 4. Diadelphia. Decandria. *Nat. Ord.* Papilionaceæ.

Cal. five-toothed. *Legume*, hooked, leafy, varicose, surrounded by a wing, not gaping. *Seeds* solitary.

6. *P. Santalinus.* Leaves ternate, roundish, retuse, very smooth, petals crenate waved.

East Indies.

Shrub.

PUNICA.—W. G. 980.

Cl. 12. *Ord.* 1. Icosandria. Monogynia. *Nat. Ord.* Pomaceæ. L. Myrti. J.

Cal. five-cleft, superior. *Petals*, five. *Pome*, many-celled, many-seeded.

1. *P. Granatum.* Leaves lanceolate, stem arboreous.

Spain, Italy.

Shrub.

PYRUS.—W. G. 992.

Cl. 12. *Ord.* 4. Icosandria. Pentagynia. *Nat. Ord.* Pomaceæ. L. Rosaceæ. J.

Cal. five-cleft. *Petals*, five. *Pome* inferior, five-celled, many-seeded.

17. *P. Cydonia*. Leaves quite entire, flowers solitary.

Germany.

Shrub.

QUASSIA.—W. G. 849.

Cl. 10. *Ord.* 1. Decandria. Monogynia. *Nat. Ord.* Gruinales. L. Magnoliæ. J.

Cal. five-leaved. *Petals*, five. *Nect.* five-leaved. *Drupe*s, five, distant, two-valved, one-seeded, inserted into a fleshy receptacle.

2. *Q. Simaruba*. Flowers monœcious, leaves abruptly pinnate, leaflets alternate, subpetioled, petiole naked, flowers in panicles.

Carolina, Jamaica.

Shrub.

3. *Q. excelsa*. Flowers polygamous, five-stamened, paniced, leaves abruptly pinnate, leaflets opposite petioled, petiole naked.

Jamaica.

Shrub.

QUERCUS.—W. G. 1692.

Cl. 21. *Ord.* 6. Monœciæ. Polyandria. *Nat. Ord.* Amentaceæ.

Male. *Cal.* commonly five-cleft. *Cor.* o. *Stam.* five to ten.

Female. *Calyx* one-leafed, quite entire, rough. *Cor.* o. *Styles* two to five. *Nut* coriaceous, surrounded at the base by a permanent calyx.

††††† *Leaves* waved, lobes awnless.

65. *Q. pedunculata*. Leaves oblong, subsessile, smooth waved, lobes blunted, fruit oblong, peduncled.

Europe.

Shrub.

RHAMNUS.—W. G. 405.

Cl. 5. *Ord.* 1. Pentandria. Monogynia. *Nat.*
Ord. Dumosæ. L. Rhamni. J.

Cal. tubular. *Cor.* scales defending the stamens, inserted into the calyx. *Berry.*

† *Thorny.*

1. *R. catharticus.* Spines terminating, flowers quadrifid dioecious, leaves ovate.

Europe.

Shrub.

RHEUM.—W. G. 803.

Cl. 9. *Ord.* 1. Enneandria. Monogynia. *Nat.*
Ord. Holoraceæ. L. Polygoneæ. J.

Cal. 0. *Cor.* six-cleft, permanent. *Seed* one, three-sided.

3. *R. palmatum.* Leaves palmate, acuminate, somewhat rugged, the sinus at the base dilated; petioles obscurely grooved above, rounded at the edge.

China.

Perennial.

RHUS.—W. G. 566.

Cl. 5. *Ord.* 3. Pentandria. Trigynia. *Nat.*
Ord. Dumosæ. L. Terebintaceæ. J.

Cal. five-parted. *Petals* five. *Berry*, one-seeded.

†† *With leaves ternate.*

17. *R. Toxicodendron.* Leaves ternate, leaf-

lets petiolate, angular, pubescent, stem rooting.

Virginia, Canada.

Biennial.

RICINUS.—W. G. 1720.

Cl. 21. *Ord.* 8. Monœcia. Monadelphia. *Nat.* *Ord.* Tricoceæ. L. Euphorbiæ. J.

Male. *Cal.* five-parted. *Cor.* o. *Stamens* numerous.

Female. *Cal.* three-parted. *Cor.* o. *Styles*, three, bifid. *Capsule*, three-celled. *Seed* one.

† *Leaves* palmate.

1. *R. communis.* Leaves peltate, palmate, lobes lanceolate, serrate. *Stem.* herbaceous, hoary. *Stigmas*, three, bifid at the apex. *Capsules* echinated.

East Indies.

Annual.

ROSA.—W. G. 997.

Cl. 12. *Ord.* 5. Icosandria. Polygynia. *Nat.* *Ord.* Senticosæ. L. Rosaceæ. J.

Petals five. *Cal.* pitcher-shaped, five-cleft, fleshy, contracted at the neck. *Seeds* very many, hispid, fastened to the inner side of the calyx.

†† *With* ovate germs.

15. *R. centifolia.* Germs ovate, and peduncles hispid, stem hispid, prickly, petioles unarmed.

Shrub.

16. *R. Gallica*. Germs ovate, and peduncles hispid, stem and petioles hispid-prickly.

Europe.

Shrub.

31. *R. canina*. Germs ovate, and peduncles smooth, stem and petioles prickly.

Europe.

Shrub.

ROSMARINUS.—W. G. 62.

Cl. 2. *Ord.* 1. Diandria. Monogynia. *Nat.*
Ord. Verticillatæ. L. Labiatæ. J.

Cor. unequal, upper lip two-parted. *Filaments* long, curved simple with a tooth.

1. *R. officinalis*. Leaves sessile.

Spain.

Shrub.

RUBIA.—W. G. 187.

Cl. 4. *Ord.* 1. Tetrandria. Monogynia. *Nat.*
Ord. Stellatæ. L. Rubiaceæ. J.

Cor. one-petalled, bellshaped. *Berries* two, one-seeded.

1. *R. Tinctorum*. Leaves annual, stem prickled.

Montpelier.

Perennial.

RUMEX.—W. G. 699.

Cl. 6. *Ord.* 3. Hexandria. Trigynia. *Nat.*
Ord. Holoraceæ. L. Polygoneæ. J.

Cal. three-leaved. *Pet.* three converging.
Seed one, three-sided.

††† *With flowers male and female separate.*

31. *R. Acetosa*. Flowers diœcious, leaves oblong sagittate.

Europe.

Perennial.

RUTA.—W. G. 827.

Cl. 10. *Ord.* 1. Decandria. Monogynia. *Nat.*
Ord. Multisiliquæ. L. Rutaceæ. J.

Cal. five-parted. *Petals*, concave. *Recept.* surrounded by ten honey dots. *Caps.* lobed.

1. *R. graveolens*. Leaves super-decompound, leaflets oblong, the end one obovate, petals quite entire.

South of Europe.

Shrub.

SACCHARUM.—W. G. 122.

Cl. 3. *Ord.* 1. Triandria. Monogynia. *Nat.*
Ord. Gramina.

Cal. two-valved, involucred, with a long lanugo. *Cor.* two-valved.

4. *S. officinarum*. Flowers paniced, leaves flat.

East and West Indies.

Perennial.

SALIX.—W. G. 1756.

Cl. 22. *Ord.* 2. Dioecia. Diandria. *Nat.*
Ord. Amentaceæ.

Male. Ament. cylindrical. *Cal.* a scale. *Cor.* none. *Gland of the base* nectariferous.

Female. Ament. cylindrical. *Cal.* a scale. *Cor.* none. *Style* bifid. *Caps.* one-celled, two-valved. *Seeds* downy.

††† *Leaves* villose.

101. *S. Caprea.* Leaves ovate acuminate, serrate, waved, tomentose underneath, stipules somewhat in the shape of a crescent, capsules ventricose.

Europe.

Shrub.

SAMBUCUS.—W. G. 569.

Cl. 5. *Ord.* 3. Pentandria. Trigynia. *Nat. Ord.* Dumosæ. L. Caprifoliæ. J.

Cal. five-parted. *Cor.* five-cleft. *Berry* three-seeded.

3. *S. nigra.* Cymes five-parted, stem arborescous.

Germany.

Shrub.

SCILLA.—W. G. 640.

Cl. 6. *Ord.* 1. Hexandria. Monogynia. *Nat. Ord.* Coronariæ. L. Asphodeli. J.

Cor. six-petalled, spreading, deciduous. *Filaments* filiform.

1. *S. maritima.* Naked-flowered with refracted bractes.

Austria, Russia.

Perennial.

SINAPIS.—W. G. 1246.

Cl. 15. *Ord.* 2. Tetradynamia. Siliquosa.
Nat. Ord. Siliquosæ. L. Cruciferae. J.

Cal. spreading. *Cor.* claws erect. *Gland* between the shorter stamens and pistil, and between the longer stamens and calyx.

5. *S. nigra*. Siliques smooth, pressed to the raceme.

North of Europe.

Annual.

SMILAX.—W. G. 1800.

Cl. 22. *Ord.* 6. Dioecia. Hexandria. *Nat. Ord.* Sarmentaceæ. L. Asparagi. J.

Male. Cal. six-leaved. *Cor.* none.

Female. Cal. six-leaved. *Cor.* none. *Styles* three. *Berry* three-celled. *Seeds* two.

† *Stem* prickly, angular.

9. *S. Sarsaparilla*. Stem prickly, somewhat four-cornered, leaves unarmed, ovate-lanceolate, cuspidate, with about five nerves, yellowish underneath.

Virginia.

Shrub.

SPARTIUM.—W. G. 1332.

Cl. 17. *Ord.* 4. Diadelphia. Decandria. *Nat. Ord.* Papilionaceæ.

Stigma. longitudinal, villous above. *Filam.* adhering to the germ. *Cal.* produced downwards.

†† *Leaves ternate.*

19. *S. Scoparium.* Leaves ternate and solitary, oblong, flowers axillary, legumes hairy at the margin, branches angular.

South of Europe.

Shrub.

SPIGELIA.—W. G. 308.

Cl. 5. *Ord.* 1. Pentandria. Monogynia. *Nat.*
Ord. Stellatæ. L. Gentianæ. J.

Cor. funnel-shaped. *Caps.* twin, one-celled, many-seeded.

2. *S. Marilandica.* Stem four-cornered, all the leaves opposite.

Virginia.

Perennial.

STALAGMITIS.—W. G. 1888.

Cl. 23. *Ord.* 1. Polygamia. Monoecia. *Nat.*
Ord.

Hermaph. *Cal.* four-leaved. *Cor.* four-petaled. *Stamens* thirty, inserted into a fleshy four-angled receptacle. *Style* thick. *Stigma* four-lobed. *Berry* one-celled, crowned by the style, three-seeded.

Male. *Cal.* *Cor.* and *Stamens* hermaphrodite.

1. *S. Cambogioides.*

Cambodia.

Shrub.

STYRAX.—W. G. 874.

Cl. 10. *Ord.* 1. Decandria. Monogynia.
Nat. Ord. Bicornes. L. Guaiacinæ. J.

Cal. inferior. *Cor.* funnel-form. *Drupe*, two-seeded.

1. *S. officinale*. Leaves ovate, villose underneath, racemes simple, shorter than the leaf.

Syria, Italy. Shrub.

3. *S. Benzoin*. Leaves oblong, acuminate, tomentose underneath, racemes compound, of the length of the leaves.

Sumatra. Shrub.

TAMARINDUS.—W. G. 1250.

Cl. 16. *Ord.* 1. Monadelphia. Triandria.
Nat. Ord. Lomentaceæ. L. Leguminosæ. J.

Cal. four-parted. *Pet.* three. *Nect.* of two short bristles under the filaments. *Legume* pulpy.

1. *T. indica*.

TOLUIFERA.—W. G. 828.

Cl. 10. *Ord.* 1. Decandria. Monogynia. *Nat. Ord.* Dumosæ? L. Terebintaceæ. J.

Cal. five-toothed, bell-shaped. *Petals* five, the lowest the largest, obcordate. *Style* none.

1. *T. Balsamum*.

America. Shrub.

TORMENTILLA.—W. G. 1001.

Cl. 12. *Ord.* 5. Icosandria. Polygynia. *Nat. Ord.* Senticosæ. L. Rosaceæ. J.

Cal. three-cleft. *Petals* four. *Seeds* roundish, naked, affixed to a small juiceless receptacle.

T. erecta (*officinalis*. S. F. B.) Stem somewhat upright, leaves sessile.

Europe.

Perennial.

TRITICUM.

Cl. 3. *Ord.* 2. Triandria. Digynia. *Nat. Ord.* Gramina.

Cal. two-valved, solitary, subtriflorous. Flower somewhat obtuse.

† *Annual.*

2. *T. hybernum.* Calyxes four-flowered, ventricose, even, imbricate, with little or no awns.

Biennial.

TU SILAGO.—W. G. 1483.

Cl. 19. *Ord.* 2. Syngenesia. Superflua. *Nat. Ord.* Compositæ Discoideæ. L. Corymbiferæ. J.

Recept. naked. *Seed-down* simple. *Cal.* scales equal, as long as the disk, somewhat membranaceous.

T. Farfara. Scape one-flowered, nearly naked, bracted, flower radiate, leaves cordate, angular toothed, pubescent on the under surface.

Europe.

Perennial.

VALERIANA.—W. G. 75.

Cl. 3. *Ord.* 1. Triandria. Monogynia. *Nat. Ord.* Aggregatæ. L. Dipsacæ. J.

Cal. o. Corol. monopetalous, gibbous, on one side of the base, superior. *Seed* one.

† *Valerians*, with a single downy seed.

6. *V. officinalis*. Flowers three-stamened, all the leaves pinnate.

Europe.

Perennial.

VERATRUM.—W. G. 1859.

Cl. 23. *Ord.* 1. Polygamia. Monoecia. *Nat.* *Ord.* Coronariæ. L. Junci. J.

Hermaphrod. *Cal. o. Cor.* six-petalled. *Stam.* six. *Pist.* three. *Caps.* three, many-seeded.

Male. *Cal. o. Cor.* six-petalled. *Stam.* six. Rudiment of a pistil.

1. *V. album*. Racemes paniced, bractes of the branches oblong, the partial ones nearly equalling the pubescent peduncle, flowers erect. Russia, Austria, Italy.

Perennial.

VIOLA.—W. G. 446.

Cl. 5. *Ord.* 1. Pentandria. Monogynia. *Nat.* *Ord.* Campanacæ. L. Cisti. J.

Cal. five-leaved. *Cor.* five-petalled, irregular, horned at the back. *Anthers*, cohering. *Caps.* superior, three-valved, one-celled.

† *Stemless*.

12. *V. odorata*. Stemless, leaves cordate, runners creeping.

Europe.

Perennial.

VITIS.—W. G. 453.

Cl. 5. *Ord.* 1. Pentandria. Monogynia. *Nat.*
Ord. Scabridæ. L. Vites. J.

Petals cohering at the top, shrivelling. *Berry*
five-seeded superior.

1. *V. vinifera*. Leaves waved naked.
Most temperate climates. Shrub.

ULMUS.—W. G. 505.

Cl. 5. *Ord.* 2. Pentandria. Digynia. *Nat.*
Ord. Hederaceæ. L. Amentaceæ. J.

Cal. five-cleft. *Corolla* none. *Caps.* compressed-membranaceous.

1. *U. campestris*. Leaves doubly-serrate, unequal at the base, flowers subsessile, conglomerate, five-stamened, fruits smooth.
Europe. Shrub.

TABLES

OF THE

RELATIVE PROPORTIONS

OF FRENCH AND ENGLISH MEASURES.

MEASURES OF CAPACITY.

		<i>Cubic Inches.</i>				
Millilitre	=	·06102				
Centilitre	=	·61028				
Decilitre	=	6·10280				
Litre	=	61·02800	=	0 : 0 : 0	:	21133
Decalitre	=	610·28000	=	0 : 0 : 2	:	5·1352
Hecatolitre	=	6102·80000	=	0 : 0 : 26·419		
Chilolitre	=	61028·00000	=	1 : 0 : 12·19		
Myriolitre	=	610280·00000	=	10 : 1 : 58·9		

ENGLISH WINE MEASURE.

<i>Gall.</i>	<i>Pints.</i>	<i>Ounces.</i>	<i>Drachms.</i>	<i>Cub. inch.</i>	<i>Litres.</i>
1	= 8	= 128	= 1024	= 231	= 3·78515
	1	= 16	= 128	= 28·875	= 0·47398
		1	= 8	= 1·8047	= 0·02957
			1	= 0·2256	= 0·00396

MEASURES OF WEIGHT.

	<i>English Grains.</i>		
Milligramme	=	·0154	
Centigramme	=	·1544	
Decigramme	=	1·5444	AVOIRDUPOIS.
Gramme	=	15·4440	<i>lbs. oz. dr.</i>
Decagramme	=	154·4402	= 0 : 0 : 5.65
Hecatogramme	=	1544·4023	= 0 : 3 : 8.5
Chiliogramme	=	15444·0234	= 2 : 3 : 5
Myriogramme	=	154440·2344	= 22 : 1 : 2

AVOIRDUPOIS WEIGHT.

<i>lb.</i>		<i>oz.</i>		<i>dr.</i>		<i>gr.</i>		<i>grammes.</i>
1	=	16	=	256	=	7000	=	453.25
		1	=	16	=	437.5	=	28.32
				1	=	27.975	=	1.81

TROY WEIGHT.

<i>lb.</i>		<i>oz.</i>		<i>dr.</i>		<i>scr.</i>		<i>gr.</i>		<i>grammes.</i>
1	=	12	=	96	=	288	=	5760	=	372.96
		1	=	8	=	24	=	480	=	31.08
				1	=	3	=	60	=	3.885
						1	=	20	=	1.295
								1	=	0.6475

TABLE

EXPRESSING THE RELATIVE VALUE IN AVOIRDU-
POIS WEIGHT, OF VARIOUS WEIGHTS TROY.

TROY. AVOIRDUPOIS. TROY. AVOIRDUPOIS.

oz.		oz. dr. gr.	lbs.		lbs. oz.
1	=	1 : 0 : 50	11	=	9 : $1\frac{3}{4}$
2	=	2 : 1 : 40	12	=	9 : 15
3	=	3 : 2 : 30	13	=	10 : $12\frac{1}{4}$
4	=	4 : 3 : 20	14	=	11 : $9\frac{1}{2}$
5	=	5 : 4 : 10	15	=	12 : $6\frac{3}{4}$
6	=	6 : 5 : 0	16	=	13 : 4
7	=	7 : 5 : 50	17	=	14 : $1\frac{1}{4}$
8	=	8 : 6 : 40	18	=	14 : $14\frac{1}{2}$
9	=	9 : 7 : 30	19	=	15 : $11\frac{3}{4}$
10	=	11 : 0 : 20	20	=	16 : 9
11	=	12 : 1 : 10	30	=	24 : $13\frac{1}{2}$
<hr/>			40	=	33 : 2
lb.		lb. oz.	50	=	41 : $6\frac{1}{2}$
1	=	0 : $13\frac{1}{4}$	60	=	49 : 11
2	=	1 : $10\frac{1}{2}$	70	=	57 : $15\frac{1}{2}$
3	=	2 : $7\frac{3}{4}$	80	=	66 : 4
4	=	3 : 5	90	=	74 : $8\frac{1}{2}$
5	=	4 : $2\frac{1}{4}$	100	=	82 : 13
6	=	4 : $15\frac{1}{2}$	200	=	165 : 10
7	=	5 : $12\frac{3}{4}$	300	=	248 : 7
8	=	6 : 10	400	=	331 : 4
9	=	7 : $7\frac{1}{4}$	500	=	414 : 1
10	=	8 : $4\frac{1}{2}$			

TABLE

OF

SPECIFIC GRAVITIES

CORRESPONDING TO THE DEGREES OF BEAUME'S
HYDROMETERS, AT A TEMPERATURE OF 55° F.

The strength of acids, &c. is usually expressed by this instrument in the French publications ; and on this account the table will be useful in applying any of the processes of Pharmacy there given. The instrument itself, although by no means an accurate one, is very conveniently applicable to practical purposes ; it is described in Beaumé's *Elemens de Pharmacie*. The Tables are taken from Nicholson's Journal.

HYDROMETER FOR SPIRITS.

Degrees.

10	=	1000
15	=	·963
20	=	·928
25	=	·897
30	=	·867
35	=	·842
40	=	·817

HYDROMETER FOR SALTS.

<i>Degrees.</i>		<i>Sp. Gr.</i>
0	=	1.000
3	=	1.020
6	=	1.040
9	=	1.064
12	=	1.089
15	=	1.114
18	=	1.140
21	=	1.170
24	=	1.200
27	=	1.230
30	=	1.261
33	=	1.295
36	=	1.333
39	=	1.373
42	=	1.414
45	=	1.455
48	=	1.500
51	=	1.547
54	=	1.594
57	=	1.659
60	=	1.717
63	=	1.779
66	=	1.848
69	=	1.920
72	=	2.000

POSOLOGICAL AND PROSODIAL
TABLE.

I would here repeat, that the Doses given by different practitioners vary so much, that any general table of them must necessarily be imperfect, and can only be expected to guard the young Practitioner from error. The quantities stated are meant to apply to adults; when given to children they require various modifications, and are not even regulated by age alone. I have, however, added Gaubius's table of the proportional doses suited to the different periods of life. Either of the two quantities given, or any intermediate one, may be used as a dose, except when the word *to* is inserted between them, which means that the quantity should be gradually raised from the former to the latter, and sometimes also it may be carried much beyond it. Some articles, as far as their effects are concerned, may be given at once in much larger quantities without hazard, and the dose of such is rather therefore estimated by convenience, on account of bulk; such, however, it does not appear necessary to distinguish particularly. The same article is often

used in different quantities, to produce different effects: such second effects, when they are *emetic* or *cathartic*, are in marked instances accordingly given in a second line, with E or C prefixed. Respecting the further regulation of effects by the infinite combinations used in practice it is impossible to form any general estimate.

A.

Abiētis Resina	-	-	gr. x	3 ss
Absinthium	-	-	ʒ j	3j
Acāciæ Gummi	-	-	3 ss	3ij
Acētum Colchici	-	-	f3ss	f3iss
———— Scillæ	-	-	f3ss	f3iss
Acidum acetūcum	-	-	f3j	f3ss
———— benzoīcum	-	-	gr. x	3ss
———— citricūcum	-	-	gr. x	3ss
———— muriaticūcum	-	-	ʒ x to	ʒ xl
———— nitricūcum dilūtum	-	-	ʒ x to	ʒ xl
———— sulphuricūcum dilūtum	-	-	ʒ x to	ʒ xl
Aconīti Folia	-	-	gr. j to	gr. v
Æther rectificātus	-	-	f3ss	f3ij
Ærūgo	-	-	gr. ʒ to	gr. j
Allii Radicis Succus	-	-	f3j	f3ss
Alōes spicātæ Extractum	-	-	gr. v.	gr. xv
———— vulgāris Extractum	-	-	gr. v.	gr. xv
Alūmen	-	-	gr. x	3ss
Ammoniācum	-	-	gr. x	3 ss
Ammōniæ Murias	-	-	gr. x	3ss
———— Carbōnas	-	-	gr. v	ʒj
Anēthi Semina	-	-	gr. x	3j
Anīsi Semina	-	-	gr. x	3j

Anthemīdis Flores	-	gr. x	3j
Antimōnii Oxȳdum	-	gr. j	gr. x
———— Sulphurētum	-	gr. x	3 ss
———— Sulphurētum præcipitātum	gr. j		gr. v
Antimōnium tartarizatum	-	gr. $\frac{1}{4}$	grss
———— E	-	gr. j	gr. iij

Aqua Anēthi	-	}	f3ij	fi3v
—— Carūi	-			
—— Cinnamōmi	-			
—— Fœnicūli	-			
—— Menthæ piperītæ	-			
—— virīdis	-			
—— Pimentæ	-			
—— Pulēgii	-			

Argenti Nitras	-	grss	to	gr. v
Armorāciæ Radix	-	3j		3j
Arsenici Oxȳdum præparatum		gr. $\frac{1}{10}$	to	gr. $\frac{1}{4}$
Asāri Folia	-	gr. x		3j
Assafœtidæ Gummi-resīna	-	gr. x		3 ss

B.

Balsāmum Peruviānum	-	gr. x		3 ss
———— tolutānum	-	gr. x		3 ss
Belladonnæ Folia	-	gr. ss	to	gr. v
Benzōinum	-	gr. x		3 ss
Bistortæ Radix	-	gr. x		3j

C.

Cajupūti Oleum	-	ṡ j		ṡ v
Cālāmi Rādx	-	gr. x		3j
Calamīna præparata	-	gr. x		3j
Cālumbæ Radix	-	gr. x		3j
Cambōgia	-	gr. ij		gr. xij
Camphōra	-	gr. iij		3j
Canellæ Cortex	-	gr. x		3 ss
Capsīci Baccæ	-	gr. v		gr. x

Cardamīnes Flores	-	-	፬j	3j
Cardamōmi Semina	-	-	gr. v	3ss
Carūi Semina	-	-	gr. x	3j
Caryophylli	-	-	gr. v	3ss
————— Oleum	-	-	፱ ij	፱ v
Cascarillæ Cortex	-	-	gr. x	3j
Cassiae Pulpa	-	-	3ss	3j
Castoreūm	-	-	gr. v	፬j
Catēchu Extractum	-	-	gr. x	፬ij
Centaurii Cacumīna	-	-	gr. xv	3j
Cetāceum	-	-	፬j	3iss
Cinchōnæ cordifoliæ Cortex	-	-	gr. x	3iss
————— lancifoliæ Cortex	-	-	gr. x	3iss
————— oblongifoliæ Cortex	-	-	gr. x	3iss
Cinnamōmi Cortex	-	-	gr. v	፬j
————— Oleum	-	-	፱ j	፱ iij
Coccus	-	-	gr. v	፬j
Colchīci Radix	-	-	gr. j	gr. v
Colocynthidis Pulpa	-	-	gr. j	gr. v.
Confectio Amygdālæ	-	-	3j	3j
————— aromatica	-	-	gr. x	3j
————— Aurāntii	-	-	3j	3j
————— Cassiæ	-	-	3j	3j
Confectio Opii	-	-	gr. x	3ss
————— Rōsæ canīnæ	-	-	3j	3j
————— - Gallicæ	-	-	3j	3j
————— Scammōneæ	-	-	፬j	3j
————— Sennæ	-	-	3ss	3ss
Conīi Folia	-	-	gr. ij	to ፬j
Contrajervæ Radix	-	-	gr. x	3ss
Copaība	-	-	፬j	3j
Coriandri Semīna	-	-	፬j	3j
Cornu ustum	-	-	3ss	3j
Creta præparata	-	-	3ss	3j

Crōci Stigmāta	-	-	gr. x	3j
Cumīni Semina	-	-	᠓j	3j
Cūpri Sulphas	-	-	gr. j to	gr. v
Cuprum ammoniātum	-	-	gr. ss to	gr. v
Cuspāriæ Cortex	-	-	gr. x	3j.

D.

Dauci Semina	-	-	᠓j.	3j
Decoctum Aloës compositum	-	-	f3ss	f3ij
———— Cinchōnæ	-	-	f3j	f3iv
———— Cydōniæ	-	-	f3j	f3iv
———— Dulcamāræ	-	-	f3ss	f3ij
———— Hordēi	-	-	f3iv	O. ss
———— compositum	-	-	f3iv	O. ss
———— Lichēnis	-	-	f3j	f3iv
———— Sarsaparillæ	-	-	f3iv	O. ss
———— compositum	-	-	f3iv	O. ss
———— Senēgæ	-	-	f3ss	f3ij
———— Ulmi	-	-	f3iv	O. ss
Digitālis Folia	-	-	gr. ss to	gr. iij
Dōlichī Pubes	-	-	gr. v	gr. x
Dulcamāræ Caulis	-	-	᠓j	3i

E.

Elēmi	-	-	gr. x	3ss
Extractum Aconīti	-	-	gr. j to	gr. v
———— Aloës	-	-	gr. v	gr. xv
———— Anthemīdis	-	-	gr. x	᠓j
———— Belladonnæ	-	-	gr. j to	gr. v
———— Cinchōnæ	-	-	gr. x	3ss
———— resinōsum	-	-	gr. x	3ss
———— Colōcynthīdis	-	-	gr. v	3ss
———— compositum	-	-	gr. v	3ss
———— Conīi	-	-	gr. v to	᠓j
———— Elatērii	-	-	gr. ss	gr. iij
———— Gentiānæ	-	-	gr. x	3ss

Extractum Glycyrrhizæ	-	3j	3ss
———— Hæmatoxyli	-	gr. x	3ss
———— Humūli	-	gr. v	3j
———— Hyoscyāni	-	gr. v to	3j
———— Jalāpæ	-	gr. x	3j
———— Opīi	-	gr. ss to	gr. v
———— Papaveris	-	gr. ij to	3j
———— Rhēi	-	gr. x	3ss
———— Sarsaparillæ	-	gr. x	3j
———— Taraxāci	-	gr. x	3j-

F.

Ferri Sulphas	-	gr. j to	gr. v
———— Carbōnas	-	gr. ij to	gr. x
Ferrum ammoniātum	-	gr. iij	gr. xv
———— tartarizātum	-	gr. v	3j
Filicis Radix	-	3j	3ss
Fœnicūli Semīna	-	3j	3j

G.

Galbāni Gummi-resīna	-	gr. x	3ss
Gentiānæ Radix	-	gr. x	3j
Glycyrrhizæ Radix	-	3ss	3j
Granāti Cortex	-	3j	3j
Guaiāci Resīna	-	gr. x	3ss

H.

Hæmatoxyli Lignum	-	3j	3j
Hellebōri fœtidī Folia	-	gr. x	3ss
———— nīgri Radix	-	gr. x	3ss
Humūli Strobīli	-	gr. x	3ss
Hydrargyri Nitrico-oxýdum	-	gr. ss	gr. ij
———— Oxýdum cinèreum	-	gr. ij	gr. x
———— rubrum	-	gr. ss	gr. ij
———— Oxymūriās	-	gr. $\frac{1}{8}$ to	grss
———— Submūriās	-	grss	gr. ij

Hydrargÿri Submūriās	C	gr. v	gr. xv
————— Sulphurētum rubrum		gr. x	ʒss
Hydrargÿrus cum Crēta	-	gr. x	ʒss
————— prācipitātus albus		gr. v	gr. x
————— purificātus	-	ʒss	ʒiv
Hyoscyāmi Folia	-	gr. v	gr. xv

J.

Jalāpæ Radix	-	gr. x	ʒss
Infūsum Anthemīdis	-	fʒi	fʒiv
————— Armorācīe compositum		fʒi	fiv
————— Aurantii compositum		fʒi	fʒiv
————— Cālumbæ	-	fʒi	fʒiv
————— Caryophyllōrum	-	fʒi	fʒiv
————— Cascarillæ	-	fʒi	fʒiv
————— Catēchu	-	fʒi	fʒiv
————— Cinchōnæ	-	fʒi	fʒiv
————— Cuspāriæ	-	fʒi	fʒiv
————— Digitālis	-	fʒss to	fʒij
————— Gentianæ compositum		fʒi	fʒiv
————— Līni	-	fʒi	O. ss
————— Quassiæ	-	fʒi	fʒiv
————— Rhēi	-	fʒi	fʒiv
————— Rosæ	-	fʒi	Oss
————— Sennæ	-	fʒi	fʒiv
————— Simaroubæ	-	fʒi	fʒiv
Ipecacuanhæ Radix	-	gr. ss	gr. ij
————— E	-	gr. v	ʒss
Junipĕri Baccæ	-	ʒss	ʒj

K.

Kīno	-	gr. x	ʒss
------	---	-------	-----

L.

Lavandŭlæ Flores	-	ʒj	ʒj
Lauri Baccæ et Folia	-	gr. x	ʒss

Lichen	-	-	᠐j	3j
Linum catharticum	-	-	3ss	3j
Liquor Ammōniæ	-	-	᠓ x	᠓ xx
———— Ammōniæ Acetātis	-	-	f3ij	f3vi
———— Ammonia Carbonātis	-	-	f3ss	f3iss
———— Antimōnii tartarizati	-	-	᠓ xv	f3iss
———— E	-	-	f3jii	f3i
———— Arsenicālis	-	-	᠓ v	᠓ xv
———— Calcis	-	-	f3ij	O.ss
———— Ferri alkalini	-	-	f3ss	f3j
———— Hydrargyri Oxymuriātis	-	-	f3j	f3i
———— Potassæ	-	-	᠓ x	f3ss
———— Potassæ Subcarbonatis	-	-	f3ss	f3iss
Lytta	-	-	grss. to	gr. iij

M.

Magnēsia	-	-	3ss	3j
———— Carbōnas	-	-	3ss	3ij
———— Sulphas	-	-	3j	3i
Malva	-	-	3ss	3j
Manna	-	-	3ss	3ij
Mastīche	-	-	gr. x	3ss
Marrubium	-	-	᠐j	3j
Mel Borācis	-	-	3j	3ij
—- despumātum	-	-	3j	3j
—- Rosæ	-	-	3j	3ss
Mentha piperīta	-	-	gr. x	3j
———— virīdis	-	-	gr. x	3j
Menyanthes	-	-	3ss	3j
Mezerēi Cortex	-	-	gr. j	gr. x
Mistura Ammoniaci	-	-	f3ss	f3j
———— Amygdālæ	-	-	f3j	O.ss
———— Assafoetīdæ	-	-	f3ss	f3i
———— Camp hōræ	-	-	f3ss	f3ij

Mistura Cornu usti	-	-	f3iv	O.ss
----- Crētæ	-	-	f3j	f3ij
----- Ferri composita	-	-	f3j to	f3ij
----- Guaiāci	-	-	f3ss	f3ij
----- Moschi	-	-	f3ss	f3ij
Moschus	-	-	gr. ij	᠑j
Mucilāgo Acāciæ	-	-	f3j	f3j
----- Amyli	-	-	f3j	f3j
Myristicæ Nūclei	-	-	gr. v	᠑j
Myrrha	-	-	gr. x	5j

O.

Olēum Amygdālæ	-	-	f3ss	f3j
----- Anīsi	-	-	m v	m xv
----- Anthemīdis	-	-	m v	m x
----- Carui	-	-	m j	m v
----- Caryophyllorum	-	-	m iij	m vj
----- Cinnamōmi	-	-	m j	m iij
----- Junipēri	-	-	m ij	m x
----- Lavandulæ	-	-	m j	m v
----- Līni usitatissīmi	-	-	f3ss	f3j
----- Menthæ piperitæ	-	-	m j	m iij
----- viridis	-	-	m ij	m v
----- Origāni	-	-	m j	m iij
----- Pimentæ	-	-	m ij	m v
----- Pulēgii	-	-	m j	m v
----- Ricini	-	-	f3ij	f3j
----- Rosmarīni	-	-	m ij	m v
----- Succini	-	-	m x	f3ss
----- sulphurātum	-	-	m x	f3ss
----- Terebinthīnæ rectificātum	-	-	m x	f3ss
Olibānum	-	-	gr. x	3ss
Olivæ Oleum	-	-	f3ss	f3j

Opium	-	-	grss	to	gr. v
Opopōnax	-	-	gr. x		ʒss
Origānum	-	-	gr. v		ʒj
Oxymel	-	-	fʒj		fʒj
—— Scillæ	-	-	fʒss		fʒij

P.

Petrōleum	-	-	ṡ x		fʒss
Pilulæ Aloës compositæ	-	-	gr. x		ʒj
—— cum Myrrha	-	-	gr. x		ʒj
—— Cambōgiæ compositæ	-	-	gr. v		ʒj
—— Ferri cum Myrrha	-	-	gr. x		ʒj
—— Galbāni compositæ	-	-	gr. x		ʒss
—— Hydrargÿri	-	-	gr. v		ʒj
—— Submuriātis	-	-	gr. v		gr. x
—— Saponis cum Opio	-	-	gr. iij		gr. x
—— Scillæ compositæ	-	-	gr. x		ʒj
Pimentæ Baccæ	-	-	gr. v		ʒj
Pipēris longi Fructus	-	-	gr. v		ʒj
—— nigri Baccæ	-	-	gr. v		ʒj
Plumbi Acētas	-	-	gr. ss	to	gr. ij
Porri Radicis Succus	-	-	fʒj		fʒss
Potassæ Acētas	-	-	ʒj		ʒss
—— Carbōnas	-	-	gr. x		ʒss
—— Nitras	-	-	gr. x		ʒss
—— Subcarbōnas	-	-	gr. x		ʒss
—— Sulphas	-	-	ʒj		ʒss
—— Sulphurētum	-	-	gr. v		gr. xv
—— Supersulphas	-	-	ʒj		ʒij
—— Supertartras	-	-	ʒj		ʒj
—— Tartras	-	-	ʒj		ʒi
Pulēgium	-	-	gr. x		ʒj
Pulvis Aloës compositus	-	-	gr. x		ʒj
—— antimōniālis	-	-	gr. v		gr. x

Pulvis Cinnamōmi compositus	gr. v	gr. x
——- Contrajērvæ compositus	gr. xv	ʒss
——- Cornu usti cum Opio	gr. v	ʒi
——- Crētæ compositus -	ʒss	ʒj
——- Crētæ compositus cum Opio	ʒj	ʒij
——- Ipecacuanhæ compositus	gr. v	ʒj
——- Kino compositus -	gr. v	ʒj
——- Scammōneæ compositus	gr. x	ʒj
——- Sennæ compositus -	ʒj	ʒj
——- Tragacanthæ compositus	gr. x	ʒj
——- Pyrēthri Radix -	gr. iij	gr. x

Q.

Quassiæ Lignum -	gr. v	ʒss
Quercus Cortex -	gr. x	ʒss

R.

Rhamni Baccæ -	ʒj	ʒij
Rhēi Rādix -	gr. x	ʒss
Rōsæ canīnæ Pulpa -	ʒj	ʒj
—— centifōliæ Petala -	ʒj	ʒj
—— Gallicæ Petala -	ʒj	ʒj
Rosmarīni Cacūmīna -	gr. x	ʒss
Rubīæ Radix -	ʒss	ʒj
Rūtæ Folia -	gr. xv	ʒij

S.

Sabīnæ Folia -	gr. x	ʒss
Sagapēnum -	gr. x	ʒss
Salīcis Cortex -	gr. x	ʒss
Sāpo durus -	gr. v	ʒss
Sarsaparillæ Radix -	ʒj	ʒj
Sassafras Lignum -	ʒj	ʒj
Scammōneæ Gummi-resina -	gr. v	ʒj
Scillæ Radix recens -	gr. v	gr. xv
—— exsiccāta -	gr. j	gr. iij

Senëgæ Radix	-	-	᠑j	᠑ij
Sennæ Folia	-	-	᠑j	3j
Serpentariæ Radix	-	-	gr. x	3ss
Simarou bæ Cortex	-	-	gr. x	3ss
Sināpis Semīna	-	-	3j	3ss
Soda tartarizāta	-	-	3j	3j
—— Carbonas	-	-	gr. x	3ss
Sodæ Boras	-	-	gr. x	3ss
—— Subcarbōnas	-	-	gr. x	3ss
—— exsiccāta	-	-	gr. v	gr. xv
—— Sulphas	-	-	3j	3j
Spartii Cacumīna	-	-	᠑j	3j
Spigeliæ Radix	-	-	gr. x	᠑ij
Spiritus Ætheris aromatīcus	-	-	f3ss	f3j
—— compositus	-	-	f3ss	f3j
—— nitrīci	-	-	f3ss	f3j
—— sulphurici	-	-	f3ss	f3j
—— Ammōniæ	-	-	f3ss	f3j
—— compositus	-	-	f3ss	f3j
—— fœtidus	-	-	f3ss	f3j
—— succinātus	-	-	m x	f3ss
—— Anisi	-	-	f3ss	f3ss
—— Armoraciæ compositus	-	-	f3j	f3ss
—— Carui	-	-	f3ss	f3ss
—— Cinnamōmi	-	-	f3j	f3ss
—— Junipëri compositus	-	-	f3j	f3ss
—— Lavandulæ	-	-	f3j	f3ss
—— compositus	-	-	f3j	f3ss
—— Menthæ piperitæ	-	-	f3j	f3ss
—— viridis	-	-	f3j	f3ss
—— Myristicæ	-	-	f3j	f3ss
—— Pimentæ	-	-	f3j	f3ss
—— Pulegii	-	-	f3j	f3ss
—— Rosmarini	-	-	f3j	f3ss

Spongia usta	-	-	3j	3ss
Stanni Limatura	-	-	3j	3ss
Staphisāgrīæ Semina	-	-	gr. iij	gr. ʒ
Styrācis Balsāmum	-	-	gr. x	3ss
Succinum	-	-	3ss	3j
Sulphur lotum	-	-	3ss	3ij
———— præcipitatum	-	-	3ss	3ij
Syrūpi omnes	-	-	f3j	f3ij

T.

Tabāci Folia	-	-	gr. ss	to gr. v
Tamarindi Pulpa	-	-	3ss	3ij
Taraxāci Radix	-	-	3ss	3j
Terebinthina Canadensis	-	-	3j	3j
———— Chīa	-	-	3j	3j
———— vulgāris	-	-	3j	3j
———— Oleum	-	-	ʒ x	f3ss
Testæ præparatæ	-	-	3ss	3ij
Tinctūra Aloes	-	-	f3ss	f3j
———— composita	-	-	f3ss	f3ij
———— Assafoetidæ	-	-	f3ss	f3ij
———— Aurantii	-	-	f3ss	f3ss
———— Benzoini composita	-	-	f3ss	f3ij
———— Calumbæ	-	-	f3ss	f3ss
———— Camphoræ composita	-	-	f3ss	f3ss
———— Capsici	-	-	f3ss	f3ij
———— Cardamomi	-	-	f3ss	f3ss
———— composita	-	-	f3ss	f3ss
———— Cascarillæ	-	-	f3ss	f3ss
———— Castorei	-	-	f3ss	f3ss
———— Catēchu	-	-	f3ss	f3ss
———— Cinchōnæ	-	-	f3j	f3ss
———— composita	-	-	f3j	f3ss
———— Cinnamomi	-	-	f3j	f3ij

Tinctura Cinnamōmī composita	-	-	f ₃ ss		f ₃ ij
----- Digitālis	-	-	m x	to	m xl
----- Ferri ammoniacālis	-	-	f ₃ ss		f ₃ ij
----- Muriātis	-	-	m x		f ₃ ss
----- Gentiānæ composita	-	-	f ₃ j		f ₃ ij
----- Guaiāci	-	-	f ₃ j		f ₃ ij
----- ammoniāta	-	-	f ₃ j		f ₃ ij
----- Hellebōri nigri	-	-	f ₃ ss		f ₃ j
----- Humūli	-	-	f ₃ ss		f ₃ ij
----- Hyoscyāmi	-	-	m x	to	f ₃ j
----- Jalāpæ	-	-	f ₃ j		f ₃ ss
----- Kīno	-	-	f ₃ ss		f ₃ ij
----- Lyttæ	-	-	f ₃ ss		f ₃ ij
----- Myrrhæ	-	-	f ₃ ss		f ₃ j
----- Opīi	-	-	m x		f ₃ ss
----- Rhei	-	-	f ₃ ij		f ₃ i
----- compositæ	-	-	f ₃ ij		f ₃ i
----- Scillæ	-	-	m x		f ₃ j
----- Sennæ	-	-	f ₃ ij		f ₃ j
----- Serpentariæ	-	-	f ₃ ss		f ₃ ij
----- Valeriānæ	-	-	f ₃ ss		f ₃ ij
----- ammoniātæ	-	-	f ₃ ss		f ₃ ij
----- Zingiberis	-	-	f ₃ j		f ₃ ij
Tormentillæ Radix	-	-	gr. x		zss
Toxicodendri Folia	-	-	gr. ij		gr. xv
Tragacantha	-	-	gr. x		zj
Tussilago	-	-	zss		zj
V.					
Valerianæ Radix	-	-	θj		zij
Vertāri Radix	-	-	gr. ij		gr. v
Vinum Aloës	-	-	f ₃ ss		f ₃ j
----- Ferri	-	-	f ₃ j		f ₃ ss

Vinum Ipecacuanhæ	-	m xx	m xl
—————	E	f3 ij	f3 ss
———— Opīi -	-	m x	f3 j
Ulmi Cortex	-	᠑j	3j
Uva Ursi	-	gr. x	3j
Z.			
Zinci Oxȳdum	-	gr. iij	gr. x
———— Sulphas	-	gr. j	gr. v
—————	E	gr. xv	3ss
Zingibēris Radix	-	gr. v	3ss

TABLE

REGULATING THE ORDINARY PROPORTION OF DOSES
ACCORDING TO THE AGE OF THE PATIENT.

H. D. Gaubius de methodo concinnandi formulas medicamentorum.

For an Adult	—	—	1	e. g.	3j
From 21 Years to 14	—	—	$\frac{2}{3}$	—	᠑ ij
—— 14 ——— 7	—	—	$\frac{1}{2}$	—	3ss
—— 7 ——— 4	—	—	$\frac{1}{3}$	—	᠑j
—— 4	—	—	$\frac{1}{4}$	—	gr. xv
—— 3	—	—	$\frac{1}{6}$	—	᠑ ssj
—— 2	—	—	$\frac{1}{8}$	—	gr. viij
—— 1	—	—	$\frac{1}{12}$	—	gr. v

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THE END.

ERRATA.

Page

31 *insert* after Filicis Radicis.

Fœniculi Semina.

Fennel Seed.

Anethum Fœniculum.

The Seed.

S. P. W. i. 1469.

M. B. t. 160.

S. F. B. 329.

37 Juniperus Lycia should stand in a line with Olibanum, and the first *The Gum Resin* be expunged.

39 *for* Piper nigrum *in* the first column *read* Piperis nigri Baccæ.

41 *line* 5, *for* Pyrëthrum, *read* Pyrêthrum.

48 and 49, *for* Terebinthia and Terebintha, *read* Terebinthina.

274 In the formula for Vinegar of Squill, for Acetic Acid *two* pints, *read* one pint.

EXPLANATION

OF

THE PLATE.



Fig. 1, 2, 3, 4. These figures are given for the purpose of explaining the Water Bath, for preparing Extracts, mentioned page 200: It in fact requires in its use less attention from the operator than the more common and destructive method of evaporating them immediately over what is called a slow fire.

Fig. 1. A common tin vessel with a spout projecting from its side, through which the steam may pass, and an addition of more water be made, when necessary.

Fig. 2. Upper concave surface of the cover, or evaporating pan, the edge of which projects over that of the vessel. The part to contain the liquid might be made of Wedgwood ware without difficulty.

Fig. 3. Section of the cover, or evaporating pan.

Fig. 4. Section of a deeper cover, or pan; to contain a larger quantity of liquor; by which the first part of the process may be performed with less necessity for attention: the latter part, when it requires more constant attention and stirring, is best performed by fig. 3.

EXPLANATION OF THE PLATE.

Fig. 5, 6, 7, 8. Series of glass measures.

Fig. 5. From a pint down to a fluidounce.

Fig. 6. From two fluidounces down to half a fluidrachm.

Fig. 7. From a fluidrachm down to five minims.

Fig. 8. A small tube, open at both ends, and graduated from five minims down to one. This being inserted into any liquid, to the level of the mark of the quantity required, and the superior end then closed by the finger, will retain that quantity on its removal, and thus allow of the mensuration of the smallest division of the wine gallon which is required.

It is by no means intended to impeach the accuracy of these measures, as prepared by different individuals; but it seems right, in the first instance, to state generally, that those made under the patent of the late Mr. Lane, and sold at Apothecary's Hall, are extremely accurate in all their relations.



Fig. 1.

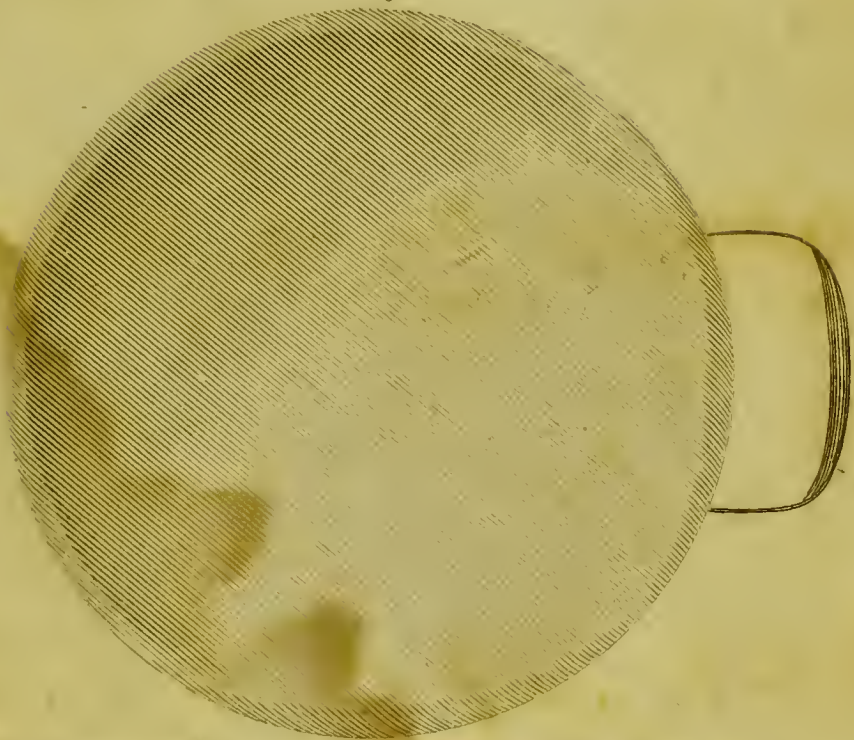


Fig. 2.



Fig. 3.

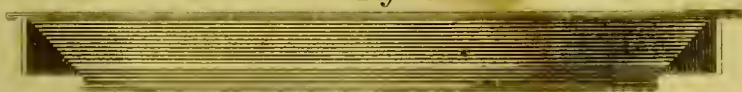


Fig. 4.



Fig. 5.

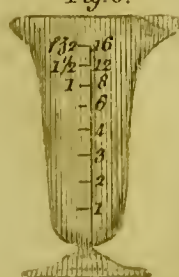


Fig. 6.



Fig. 7.

Fig. 8.

